AMERICAN PHRENOLOGICAL JOURNAL.

AND

Repository of Science, Literature, and General Intelligence.

VOL. XVII. NO. 3.] NEW YORK, MARCH, 1853. [$1.00 A YEAR.

PUBLISHED BY

Fowlers and Wells,

No. 131 Nassau St., N. Y.

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WHAT SHALL I DO FOR A LIVING?

NUMBER II.

In our article in the January number, on this subject, we stated that a man's character is very much influenced by his business; that it exerts a mighty agency in shaping his intellect, his manners, and his morals, and mentioned some pursuits in which no person should engage, because they are, in their legitimate effects on society, *evil* and *only* evil. We now propose to call attention to some of the pursuits in which a man may properly engage, and in which, while he preserves his conscience and his manliness, he is at the same time rendering himself, by his business, a blessing to the world.

Agriculture is, in civilized countries, the principal occupation of man, and as it is the primitive, so it is, also, the most important of all. As food is the first necessity of man, that employment which supplies this universal and oft-returning want, must rank first in importance. More persons are necessarily engaged in farming than in any other single pursuit, especially in the United States.

An opinion, as false as it is ridiculous, has crept into the minds of many, if not the majority, of our young men, that farming is less noble and honorable, as a vocation, than many other pursuits. If to be the owner and lord of the soil we till, of the hills and lawns, the running brooks, and the giant trees, laden with fruit, and to be the master of our own time and efforts, relying only on the immutable Providence of the Creator for the rain and sunshine, combined with our own efforts, to give us bread, be not a position of independence and honor, we know of none that is.

Do our young men want eminent examples in our own country, to induce them to regard farming with favor? Let them remember Washington, who had no other profession, Jefferson, Jackson, Clay, and Webster, who, though distinguished as lawyers and statesmen, were proud to call themselves, and to be called, *farmers*.

Thousands of our city merchants, who, in disgust, left the farm in youth for that which they then regarded as the more honorable occupation of the merchant, having learned in the school of experience a lesson of common sense, are shaking off the dust of their feet upon the city, and retiring to rural pursuits, happy in the fact, that they have escaped from the turmoil, the anxious uncertainty and selfishness of the trading world, to find agreeable recreation and repose, on the broad, generous bosoms of their own farms. They find that there is no envy in the soil they till, no malice in the honest oxen they rear. Nature's horn of plenty is emptied into their laps, without stint or grudging, and they find that whoever is honest and efficient in his dealings with the soil, is never cheated in return. Our good mother earth, whatever some of her sons may be, is neither a knave nor a bankrupt. She never fraudulently stops payment, nor has she any respect of persons. Whatever muscles bend over her generous bosom in well-directed toil; whatever honest brow thinks and sweats to put her in right relation with sunshine and shower, is owned as a worthy son of her bounty, and she crowns

him with her own green laurels, and rewards him with the richest of her treasures.

The reasons we would offer to our young friends in the country for being farmers, are briefly these:—It is a healthy business. There is less chance for loss, and more certainty of a "good living," than in any other business. It is more independent. The farmer is his own master; he works for God and Nature, and they never repudiate their just debts nor defraud the worthy worker. Nor must he give all the profits of his labor to the employers. The farmer can have his meals and his evenings with his family, and thus, more than most men, can cultivate his social and intellectual faculties. If he will, he can be well informed; he has the means and the time, if he will but use them. It is a sphere in which there is less temptation to immorality, avarice, and meanness, than that of most other pursuits, and we hazard nothing in saying that the morals of farmers will bear comparison with any other class.

For many years to come, our wide domain of virgin soil will be open for the hand of new cultivators. Who shall possess the domain? Who will become the rightful princes of the soil? Shall it be the sons of those who made the Atlantic coast to smile like a garden?—or will they, in an overcrowded population, be content to act as "hewers of wood and drawers of water," or follow trades in cities, which, from foreign rivalry, barely yield a support, while hordes of foreigners swarm to the mighty West, and become proprietors of that vast domain?

Let the sons of those who have fought the battles of civilization and of freedom, on these shores, be not few among those, who, with the symbols of wealth and rural happiness, shall soon dot our broad Savannas toward the setting sun.

It pains us to see bright, promising, and healthy young men crowd into our cities and enter upon subservient occupations, calculated to dwarf their muscles and their manliness, not one in fifty of whom can ever rise to a post of independence in mind or in purse, while they turn their backs upon our immense territories of new land on which, in this age of progress and improvement, they might, in ten years, be sturdy and independent citizens.

To be a successful farmer it requires good sense, steadiness of purpose, energy, hopefulness, patience, and a love of nature and of home; or, in Phrenological language, good perceptive and reflective intellect, Firmness, Combativeness, and Destructiveness, Hope, Continuity, and Inhabitiveness. Constructiveness is also very convenient to the farmer, as many little repairs are constantly required to keep buildings, fences, and tools, in order; beyond this, people seldom think mechanical talent necessary to the farmer; but Phrenology says, that the skilful use of the scythe, the axe, the cradle, and all other tools, to say nothing of keeping them sharp and in good working order, requires good Constructiveness, and he who has the best general mechanical talent, will, other things being equal, make the best practical farmer. The idea that the farmer has nothing to do with machinery and the exercise of mechanical talent, either in the line of invention or in the exercise of skill in the use of tools, is in keeping with the clumsy contrivances for agricultural implements, and the tedious hand-labor process of their use, as exemplified in "old-fashioned" farming, say thirty or forty years ago. Then the old wooden plough was in vogue, which required a strong man to keep it in the ground, and make it tear its way through the soil, and it was, indeed, labor for the team to draw it—then, the fork of a tree answered for a harrow—then there were no corn planters, cultivators, light harrows, with joints to adapt them to undulating surfaces, corn shellers, threshing machines, or straw-cutters. These, the implements of modern farming, have resulted from the exercise of the mechanical faculties among farmers. Men who were educated as practical mechanics, and those who have received at the universities an education in Mathematics, Chemistry, Natural Philosophy, and Mechanics, have adopted agriculture as a pursuit, and enriched it with their skill and learning, so that the implements of agriculture, from an ox-cart to a pair of sheep-shears, have a neatness, skill in construction, and adaptation to their uses, such as to challenge admiration, and invite the hand to their use as a matter of pleasure instead of fatiguing drudgery.

To the young men of our county, then, we say, DE FARMERS. We want tens of thousands more of them to-day than we have—and the persons who ought to become such, may be found, hanging around the overcrowded professions, and the commercial and mercantile interests, barely eking out an inglorious subsistence, when, if they would employ as much brain-work and half the drudgery and anxiety, in connection with agriculture in our old and new States, as they now employ to keep soul and body together in ill-paid subordinate positions, they might rise to the dignity of men, and to the substantial platform of pecuniary independence. We say, then, to young men, *follow farming for a living.*

The consideration of other pursuits must be reserved for future numbers.

CHARACTER AND BIOGRAPHY

OF AMELIA BLOOMER.

MRS. BLOOMER has a brain of average size, with a great predominance of the mental temperament, and a high order of activity. Her strength is not equal to her activity, hence she is very energetic and forcible in disposition, and liable at times to go beyond her strength, and to take upon herself too much. She is never idle, cannot take things easy, or move slowly. Her phrenological developments indicate an uncommon intensity of mind, hence she enjoys very vividly or suffers very acutely.

She is decidedly positive in feeling, and is characterized for the following predominant traits:—first, she is very adhesive and ardent in her attachments, is much interested in friends, and finds it difficult to break attachments once formed. She readily draws persons around her, and makes and enlists their friendship. She is fond of children, as a parent would be decidedly tender in her feelings towards them, but this feeling would require the parental condition to give it intense action. Her connubial love, though strong, is under her control. Her regards are more spiritual and moral than physical. Her local attachment is quite strong, her continuity of mind is not great; her feelings are more intense and vivid than protracted; she is too apt to bring her thoughts to a focus at once; does not sufficiently carry out and amplify an idea, and is never prolix in description. Her Combativeness is large, which enables her to feel the full force of opposition, and she readily meets difficulties and dangers. In fact, the more obstacles there are in her way, the more courageous and spirited she becomes to remove them. Destructiveness is also large. She has not the feelings of hate and revenge, does not delight in cruelty, does not harbor very deep feelings of repugnance: still she is sharp, pointed and positive in her dislikes. Her desire for gain, as such, is ordinary. She values money not so much for its intrinsic worth as for its influences and uses. She prefers to live as she goes along, and use her means for her own good and that of others, rather than to hoard it up for the future.

She has a fair degree of Secretiveness and desire to conceal her own feelings, and exercise tact and management. She is not necessarily cunning; in fact among her friends she is quite open-hearted, frank and confiding, but when the occasion requires tact and skill, she will be quite successful. She is watchful, guarded, mindful of consequences; is apt to have too much solicitude, and take upon herself more care and trouble than really belongs to her. She is wide awake to the chances of that which is hazardous and dangerous. Ambition is one of the marked features of her mind. She is very sensitive in regard to whatever may affect

her character and reputation, is willing to do her best to merit the good opinion of others. She is naturally polite, affable and entertaining, and desirous of securing approbation. She is not proud, haughty, distant and repulsive, but loves herself as she is loved, and values herself as she is valued by society; indeed, she is too apt to regard the opinions of others, either favorable or unfavorable, and to govern herself too much by them. Larger Self-esteem would give her more dignity, self-possession, and power to exert an individual influence. Her great forte now consists in making friends, and rendering herself influential through the friendly channel. Her will is strong, and her desire to secure her purposes is such that she will make vigorous efforts to obtain them. She has a strong sense of justice, feeling of obligation, regard for right and duty; her hopes are bright, feelings sanguine and enthusiastic; she is not contented to glide along with the current, and take things as they come—were it not for large Cautiousness she would rely too much on her anticipations. Veneration and Marvellousness are both fully developed, and have a fair influence on her mind; particularly when writing does she find herself aided by their inspiration. These give her a confidence in the cause in which she may be engaged. She is keenly alive to suffering humanity, readily renders service, and is anxious to promote general happiness. She will make sacrifices of her own convenience and comfort, for the sake of doing good. She has versatility of talent, can readily devise ways and means; is seldom at a loss for the best method to secure her ends. She is strongly imaginative, appreciates the beautiful and poetical, enjoys the sublime, is very fond of oratory, eloquence, and the grand in nature. She can imitate modes and conform to society very well, is rather mirthful and sprightful in conversation, and her jokes are off-hand. Her faculties for acquiring information from external sources are good. She is well qualified to see and know for herself, and has a "matter-of-fact" cast of mind. The perceptive faculties generally are fully developed; hence her mind is available. She can readily put her thoughts into practice, has a fair degree of order and system, is good in figures, ready as an accountant, remembers places well, and has a general memory of business transactions.

Language is fully developed. She is not particularly varied in conversation, has no more words than ideas, still, owing to the order of her mind, may exhibit considerable readiness and copiousness of speech. Her reasoning faculties are not as largely developed as the perceptive. She is therefore not as abstract, philosophical, and farfetched in her ideas as she is disposed to base her theories on facts and experience. She has suavity of manner, is youthful in her feelings and disposition, can adapt herself to the various minds with whom she comes in contact; is generally successful in her efforts to please and entertain. She has too great intensity and vividness of feeling, is not sufficiently dignified and self-possessed, has not that stability and weight of character which would exert a commanding influence; hence she wins her way to respect and confidence by her practical sense, earnestness of disposition, frankness and honesty of character, sincerity of friendship, and ambition to please others and make them happy. Her character is sometimes a puzzle to herself and others. She has two classes of faculties existing in nearly equal power, and when either class is acted on by such circumstances as are calculated to awaken one class without the other, she has one cast of character; when the other class is aroused, an almost entirely different character is evinced. One impels her forward to do and dare everything that she thinks is right; the other leads her to shrink from rough encounter with the world, to dread criticism and censure, and yield to the blasts of reproof; the one tells her she *can* do if she will, the other that she cannot, and effort is useless. And as these mental conditions alternately gain the mastery, her character is differently estimated. By one she is considered forward, heroic, and eager to lead; by another timid, sensitive, and exceedingly modest.

BIOGRAPHICAL SKETCH.

Mrs. Bloomer, of whom all the world has heard, in connection with the dress which bears her name, is the wife of a very respectable lawyer of Seneca Falls, Seneca County, New York. Contrary to the general opinion, she is *not* the originator of the new costume, but as she adopted it soon after its advent, and as she had become widely and favorably known as editor of "The Lily," her name, partly, perhaps, because of its euphony, and partly because of her popularity, was appended to the short dress, and sent forth to the world to "sink or swim, survive or perish" with it. So shocked were many at the dress-innovation, and estimating the woman whose name it bore by their opinion of the dress, supposed she must be an immodest, proud, masculine Amazonian. But nothing could be farther from the truth.

A very interesting sketch of our subject from the pen of the editor of the *Cayuga Chief* recently appeared in that paper, which we transfer to our columns. As the editor has enjoyed her acquaintance, he speaks from personal knowledge.

It is a difficult undertaking to sketch a living original unless you have "summered and wintered with them," and seen them in sunshine and in storm. Were we an artist with pencil and palette looking upon some landscape which we were about to transfer to canvas, a cultivated taste and a practiced eye would at once weave the beautiful imagery of earth's loveliness into form. The fields, the woodlands and cottages—the lakes, the streams, flecking sunshine and drifting clouds, would all be daguerreotyped in miniature. Or a human form which we wished to portray—the symmetrical form, the features, carriage, etc., would grow under the touch of the pencil, a faithful reflection of the original.

But how different to thread the devious web of mind—to sketch that upon paper, to faithfully delineate the delicate tracery of the feelings, hopes and aims which enter into the composition of human character!

But difficult as it is, and as far short as we may come of performing our task well, we have yet set down to a pleasant task; pleasant because we are to speak of one who is true of heart and noble in aim; whose kindly sympathies are only equalled by her integrity of purpose and her unwavering devotion to all the higher interests of Humanity; and whose well-directed talents and moral heroism are an honor to her sex, and to the fraternity of which she is so worthy a member.

The lady whose name stands at the head of this article has recently acquired a notoriety not confined to the limits of her own county. Like Byron, she went to rest all unconscious of greatness, and awoke one morning to find herself famous. Her name, her age, her history and her personal character have been canvassed by the public press, in public assemblies and in private circles, with a freedom having few precedents in the ordinary events of the day. And yet, the lady herself, with whom the writer is well acquainted, possesses a character of quiet, unobtrusive modesty little in harmony with the hubbub her name, connected with a change in the form of her apparel, has to her most unexpectedly created.

But a few years since, and Mrs. Bloomer was "unknown to fame." She was quietly pursuing her customary avocations in the beautiful village where she resides. True, in the circle where she moved, she had been known as a warm friend, and in her quiet way, a true-hearted advocate of the Temperance cause; and her more intimate friends had recognized her straightforward good sense and warmth of heart in a series of well-written articles for the *Water Bucket and Star of Temperance*. But she was to be forced from the quiet sphere where she moved. In 1849 her name was first brought before the public as a writer. In the winter of that year, she was selected by the Ladies' Temperance Society of Seneca Falls, as one of the editors of a new Ladies' Temperance paper which the society had determined to publish. This selection was made against her own expressed wish; but the post being urged upon her by those whose wishes she felt bound to respect, she entered into the work with all the enthusiasm of her nature. After the second No. the society abandoned the enterprise, and her associate editor also withdrew from the paper, and left the place. Thus was *The Lily* deserted by those instrumental in bringing it into existence, and for a short time it struggled between life and death. All looked upon it as an entire failure, as it was prophesied by many at the start that it would be. In this state of affairs Mrs. Bloomer's womanly pride came to her aid. As her name had gone before the public in connection with the paper, she felt a responsibility resting upon herself, and that she could not in honor abandon it till the time expired for which subscriptions had been received. It was a novel position for her to be placed in, without experience, without confidence in her own abilities for such an undertaking, and with only about half the sum pledged necessary to carry through the first volume, she resolved to save her own credit and that of her sex, by showing to the world that woman is capable of carrying through what she undertakes, however difficult or repugnant to the feelings the task may be. And so the paper passed into her hands, and the whole control and management of it, both editorial and financial, has since devolved upen her. At first she only thought to carry it through the first year, and then stop it; and with this end in view she refused subscriptions for a longer time. But at the

AMELIA BLOOMER.

urgent solicitation of friends she entered upon a second volume, and then a third, and a fourth, and on the first of January, 1853, it entered upon the fifth year of its existence with a circulation of two thousand. From its first commencement "The Lily," a name given the paper by the society with which it originated, has been a zealous advocate of the Temperance cause, and a bold and determined opponent of the liquor trrffic in all its forms. With a heart of the kindliest sympathies for the suffering, yet with a masculine energy, her plume, like that of Joan of Arc, has tossed in the thickest of the conflict. She has fearlessly denounced the soul-destroying, Heaven-cursed business at all times, and boldly appealed to the Legislature for the enactment of righteous laws to arrest its fearful havoc in the souls and bodies of men. Her appeals and warning have been extensively copied by her cotemporaries in the Reform.

For a year past, Mrs. Bloomer has extended the scope and purpose of her paper, and her writings have partaken of a more general reformatory character. She has boldly—may we not say, nobly—spoken out for the ENFRANCHISEMENT OF WOMEN; first from the terrible sufferings which the rum traffic has inflicted upon the sex, and secondly, from every obstacle or impediment which unjust or mistaken laws, customs, fashions or usages, have constructed to prevent her full, mental, moral and physical improvement. She takes the position, and earnestly and ably sustains it, that *woman should be the judge of her own sphere of usefulness*, and that man has no just right to decide this important matter for her. It is for woman, and woman alone, she affirms, to decide whether or not she shall enter the professions, engage in a wider range of employments, exercise the elective franchise, or fill public offices; and that there is nothing either in the capacity of her mind or the fitness of things, to exclude her, if she shall so decide, from either. Man is left to decide in these matters for himself; why should not woman enjoy the same privilege?

With the gentler sex, dress has ever been an important matter, more so, perhaps, than with man. But in nothing more than in the form and mode of apparel, has woman been a slave. Fashion has been to her the most cruel and exacting of masters. Health, comfort, convenience and propriety, have been all sacrificed at the shrine of this inexorable Divinity. Her own, and the interests of her children, have all been wickedly demanded for a worse than Heathen sacrifice. This tyranny, Mrs. Bloomer claims, should be shaken off; and every woman, and all women, should be left to wear such dress, and only such, as convenience, utility, decency and propriety shall dictate; and that it is no sufficient reason why an American woman should don a fashion, simply because it is worn in the licentious *salons* of Paris. Acting upon this principle, Mrs. Bloomer did not hesitate, when the new form of dress was brought to her notice, to at once give it a trial; and being pleased with it, she at once determined to adopt it, and accordingly for the last five months has worn no other. She does not fail to advocate it through the columns of her paper; and although she is not, and does not claim to be the originator of the NEW COSTUME, yet her name has become so connected with it, that the "Bloomer" is the universal cognomen for the short dress.

Mrs. Bloomer has not invaded the sacred realm of Fashion without peril. Although the Press, with a unanimity seldom witnessed upon any question, has spoken in favor of the new costume; yet the tyranny of Fashion holds in chains those most interested. The fiat has not been spoken from the right quarter. The Priestess who laughs at the Slavery of woman, has not yet given a response from the Temple where a world bows in servile homage. Had the new costume been reported from Paris or London, and been adopted by gilded baubles and titled prostitutes, it would have found its eager converts and admirers even in the wilderness hamlets of America. But it comes unheralded and unannounced. An unassuming Lady in Western New York asserts her independence for her own health and comfort, and lo! "la me!" exclaims the world of fashion The world stands aghast at the presumption.

Propriety, health, comfort, utility and common sense pronounce for the change in female dress, but the mass hesitate. It is not popular enough! And thus *woman* acknowledges herself a slave to fashion, and without the moral heroism to stand forth in the dignity and strength of womanhood and of physical and intellectual disenthralment. Woman, with a perversity which is unaccountable, has joined in the cry against the innovation of the new heresy. The rowdyism of the male sex has exhausted its vocabulary of stale slang in derision of it. *Rouge*-cheeked modesty has thrown up its dear hands and attempted to blush at the impropriety, looking aghast at offending pants, and in the street, lifting the dragging skirt beyond the utmost extremes of decency. Pot-house loungers have tricked out wenches and street vagrants in the new dress, and the assumed guardians of correct taste have smiled at the low-bred insult, and pointed to such characters as an argument against the change. Strange that such nice people have so long worn the same costume as the low and vile! Old Hunkerdom has assumed the most ludricrous gravity, and, ever afraid that the world would run mad and slip from its moorings and tumble all the people out upon the same level, has yawned out its anathemas, and swept the new dress by the board by linking it with naught but the low and vulgar. Now and then a press has come to the rescue, ungallantly sneering at "Bloomerism." The subject of this sketch could do no less than to notice and repel such attacks. She has done so with signal ability. Woe betide the ungallant knight who rudely spurs upon the Editress of The Lily, for he is sure to get a sore head for his impudence. Her bearing in these encounters with some of her cotemporaries has excited our admiration. Always cool and self-poised, and with the deliberation of conscious power, she smiles at the onset, and with a sarcasm as keen as a Damascus blade proceeds to the cutting up her assailant with the most provoking *sang froid*. She does not seem to covet the onset—we know she does not; but aroused, there is a shadow of lurking mischief upon her quiet features as much as to say, "you impudent puppy! you would have it so," and turns aside as undisturbed by the encounter, as from carving a steak at the table. Conscious of the right, pure in motive, and firm in purpose, she repels every assault in a manner not to be forgotten by the assailant.

We have said that the personal history and appearance of Mrs. Bloomer has been made a matter of common discussion. She *has* no startling and strange history to present to the lovers of the wonderful. She is a native of Cortlandt Co., and is now about thirty-four years of age. She is small in person, has a good form, small feet, a fair development of forehead, and a plain but pleasant countenance. The warmth and truthfulness of youth beams in every feature—of a heart which vibrates quickly at a wrong, and floods freely at others' grief. She has dark brown hair and a mild eye. She has been well educated and has mingled in good society, is a member of the Episcopal church; and in all the relations of social and private life—as a daughter, wife and friend, is a

model woman and above reproach. She was married in 1840 to D. C. Bloomer, Esq., a respectable and able young lawyer of Seneca Falls, at which place she has continued to reside. Her husband is a prominent politician, an ardent Whig, and was appointed Postmaster at Seneca Falls, by Gen. Taylor's Administration, early in 1849, which office he now holds. Previous to that time, he edited the *Seneca Courier* with dignity and ability. On the reception of his present office, he at once appointed Mrs. B. his assistant, and with the exception of three months, has had no other. She is thoroughly acquainted with the details of the office, and often discharges alone its duties in the absence of her husband, thus in her own person proving that woman is fitted for some of the employments, at least, unreasonably monopolized by man.

We know Mrs. Bloomer, and have seen her in her favorite dress. She does not wear it to provoke notoriety, but because she believes it right. A Southern paper speaks sneeringly of the "antiquated Mrs. Bloomer." No such matter will ever drive her from her position. Success to her in every effort to ennoble and elevate her sex, and to the many noble and true-hearted women who are engaged with her in the good work.

That the new costume will triumph, we have an abiding faith, and the notoriety of Mrs. Bloomer to-day, will deepen into the enduring fame of to-morrow. We love the woman [Mr. B. must not be jealous!] not more for her decision and independence of character and the ability with which she vindicates the rights of her sex and of humanity, than for the possession of every virtue which sheds a lustre upon the character of woman. She is in the meridian of life. May its sunset be afar off, and as brilliant as the promise of the noon.

JUNIUS SMITH.

HIS CHARACTER AND BIOGRAPHY.

JUNIUS SMITH, LL.D.

A MAN OF CHARACTER, an organization capable of exerting great influence on men. He had a vigorous, dense and compact muscular system, with a capacious chest, ample lungs and fully developed vital apparatus, which gave strength and endurance. Coupled with those conditions, he possessed a large and active brain of the best quality of material for elaborating MIND. Such a man *cannot* remain idle. He must work, and that, too, upon a comprehensive plan. No selling of "needles, pins, tapes, &c.," with such a "wholesale" organization as this. His portrait, which we copy by permission from the *New York Illustrated News*, is evidently truthful, and "speaks for itself." Besides the admirable development of brain and body, Mr. Smith was liberally and practically educated, which rendered him capable of succeeding in almost any calling.

HIS PHRENOLOGICAL DEVELOPMENTS were very strongly marked. The executive and propelling organs were large. His social feelings, moral sentiments, intellect, and sense of justice and honor were amply developed. He had a retentive memory, quick and correct mechanical conceptions. He was eminently qualified to take the lead in any great and important enterprise, having for its object the advancement and improvement of commerce, manufactures, agriculture, or the arts and sciences. His death, even at this advanced age, is a public loss. We conclude by quoting from the New York *Evening Post* of recent date.

"JUNIUS SMITH, LL.D., was born in Plymouth, Connecticut, on the 2d of October, 1780, graduated at Yale College in 1802, and was a messmate and law student at Litchfield with the late Hon. John C. Calhoun, under the instructions of the celebrated jurist, Judge Reeve. Finishing his studies he practised at the bar, with considerable success, in New Haven, until 1805, when he was called to pursue a claim against the British government, in the Admiralty Court of London, for a large amount, upon the successful termination of which, he determined upon continuing in London, where he entered upon commercial pursuits with this country, conducting a prosperous business for many years.

"In the year 1832 he engaged in the project of endeavoring to secure the navigation of the Atlantic Ocean with steamships. Against the opposition, abuse, and derision of the multitude (for almost every body believed it impracticable but himself), he published a prospectus, pressing the enterprise upon the public mind, but it was not until the year 1836 that he succeeded in establishing a company, with a board of directors, under the title of the British and American Steam Navigation Company. A contract was made for building a steamer of 2,000 tons, and after much difficulty, arising from the failure of the contracting engineers, by which the ship was delayed over eighteen months, the steamship British Queen was completed.

"During the delay and disappointment Dr. Smith was not inactive, but, impressed with the feasibility of his project and the necessity of giving assurance to the public mind, urged upon the Board of Directors the great advantage of sending out a steamer, to be chartered for the purpose; this was done, and the small steamer Sirius crossed the ocean in the spring of 1838.

"The loss of the ill-fated steamship the President, owned by this company, with a combination of circumstances, caused a dissolution of the steam company, throwing Dr. Smith upon new resources; consequently, in the autumn of 1843 he embarked for the country of his birth. Here the restless energy of his enterprising spirit opened a new field, and he set about waking up the public interest of this city and country to the necessity of dividing the benefits of ocean steam navigation, in pursuance of which he waited in person upon our capitalists and merchants, but finding comparative listlessness, and that government patronage was all-powerful in sustaining the British steamships, he set to work to secure the aid of our government, and spent two whole sessions of Congress in securing the passage of an act by which the present steam companies secured their contracts for carrying the mails.

"Finding himself foiled in anticipated advantage from this project, he abandoned the commercial arena, and turned his attention to what had always been a source of pure enjoyment—agricultural pursuits; in pursuance of which he aimed to introduce the tea plant, which enterprise he was engaged in when he received an assault and fracture of the skull, from which he never recovered. At the age of 72, like a shock of corn fully ripe, he has been gathered home, and reaps the harvest of a Christian's life. The leading traits of his character were great energy of purpose, indomitable perseverance, with a remarkable regard for the feelings of others, a kind and generous manner, and an open-hearted hospitality."

TEACHING—THE PLAN.

BY F. W. E.

Quod est, et cui bono?—What is it, and what the use of it?—the science before the art—is our motto, from the alphabet, to studies the most abstruse and difficult. These are our first questions to every scholar. That he may be made to understand, and be able to answer them, is *our first great object*, in whatever he undertakes. What are you learning at school, Harvey?

"My letters, Sir."

And why do you learn your letters?

"That I may become a man by-and-bye."

Let a scholar be first made to know what he is about, and of what use his studies will be to him, and half the teacher's work is done—if he have the capacity, he will learn. To every noble-minded youth, the communication of this knowledge, the presentment of this motive, will do more—prove more efficient for his advancement, than a thousand stripes.

In connection with the common reading book of the class, the books studied, also, furnish lessons for reading, spelling and definition. Thus, for instance, to the student in arithmetic, after reading the first sentence, we propound the words *art, science, computing, numbers*, &c., &c. The meaning of art? "Something which may be done."—Of science? "Knowledge, or something which may be known."—Of computing? "Reckoning, calculating, or working."—Of numbers? "1, 2, 3," &c. What now is the difference between a science and an art? By putting together the synonymous words used for each, a scholar of any mind cannot but understand it. On all lessons memorized, we ask similar questions.

We require and help every scholar to understand his *rule*, before he begins to work under it. By this means, what would otherwise in practice be hard, becomes easy to him; and we save ourself the trouble, and our school the time, of doing many *long sums*, which if done by us, would not make our scholars any the wiser. And so of every other study.

Why have you not learned this lesson, James?

"My *Pap* said I need n't get it—said it would n't be of any use to me, if I did."

Ah, well—we will see your *Pap*.

"Our method of instruction," said an eminent teacher in the city of New York, "is analysis, which teaches children and youth the art of thinking for themselves." And so say we, 'under a firm conviction, that every deviation from this course is calculated to retard the energies of the mind, and consequently, from exhibiting an interest in the philosophy of those important studies in which children may be engaged.'

We have had scholars, who, on entering our school, informed us that they had *ciphered* to the *Rule of Three;* who being asked what is arithmetic? What are its ground rules? could not tell. We have then asked, how do you spell arithmetic?

"*A-reth-ma-tick.*"

Exactly so. Here we had the opportunity of correcting them, and of showing how badly such spelling would look in a letter to a friend. In cases like this we seldom blame the scholar: but we blame the *bark-mill system*, to which he has been subjected—the schools in which, like a draw-horse, the boy or the girl has been whipped round and round the wheel—we blame the ignorance of his former instructors, who would have been better employed in a bark-mill, than in teaching anything more than the alphabet of their mother tongue.

But, say the parents, "They are *cheap* masters."

How cheap?

"Two dollars a scholar per quarter, three calendar months, and take their pay in *trade*."

Very cheap!—George, How long have you been studying arithmetic?

"I don't know exactly"—

Three quarters?

"Yes, more than that."

Cheap—very cheap! 3+2 = 6.—*Six dollars* for tuition—three quarters of a year of time—the wear and tear of clothes, shoes, their board, &c. And yet, two weeks before this, George could not numerate the *nine digits*, nor tell why, in simple addition, he carried *one* for every *ten*, rather than for any other number!!!

Though we have had scholars thus ignorant, when they first came to our school, we never dismissed one thus ignorant, who had made arithmetic a principal study one quarter. We say *one quarter;* for once we had two lads, who came to us *half a quarter*, and then "*quit* school," who, after our most assiduous endeavors, could only be taught a little of the *art*. Ask them now, What is arithmetic? and *ten* to *one* their answer will be: "It is the cost *of* a science." And very true; but so we would not have the book memorized.

We care not about the exact words of the author being always given, provided we have his sense: we prefer, when they can do it, that scholars use their own words. It is one thing, however, for a scholar to have on any subject a set of confused ideas; and quite another, a set of clear ones, acquired by instruction and study. The former enter only the surface of the mind: the latter are deep rooted and abiding. We have often heard the old scholar, possessing the former, say "I know how or why, but cannot tell:" possessing the latter, the child of ten years old *can tell*. Here is the difference. Our last great object, therefore, is, at every step, to communicate and guide in the acquisition of these, the constituents of useful knowledge which will remain.

BOOKS.

THE BIBLE is our FIRST CLASS BOOK. We accord with GRIMKE. "Whether we look to its truth and importance, to its universal and enduring character, or to the variety, sublimity, and beauty of its elements, all other books are vastly inferior to it." And any scholar who can read well anywhere in the Bible, can read well anywhere in any other book. We would not have it understood, however, that the Bible, from Genesis to Revelation, will all be read in our school by course, but selections from it; nor that we propose teaching from the Bible any sectarian peculiarity. But the existence of "ONE GOD"—the *great truth* revealed in the Old Testament; and that "God so loved the world, as to give HIS ONLY BEGOTTEN SON, that whosoever believes on him may not perish, but obtain eternal life,"—the *great fact* of the New Testament; as a Christian, we shall ever feel bound, on proper occasions, to inculcate upon all who are committed to our charge.

ANATOMY AND PHYSIOLOGY OF DIGESTION.

No. IV.—THE GASTRIC JUICE.

BY A. P. DUTCHER, M.D.

THIS fluid is secreted from the mucous membrane of the stomach. In appearance it is not unlike saliva; it is, however, distinctly acid to the taste; and chemical analysis shows that it contains a considerable proportion of free hydrochloric or muriatic acid, and also some acetic acid. It also contains muriates and phosphates, soda, magnesia, and lime. It possesses the power of coagulating albumen in an eminent degree; it is powerfully antiseptic, checking the putrefaction of meat; and it is effectually restorative of healthy action, when applied to old fetid sores and foul ulcerating surfaces. It will keep for many months, without becoming fetid, if excluded from the air.

Much light, has, within a few years past, been thrown upon the nature of this secretion, and the action of the stomach in digestion, by Dr. Beaumont, in his experiments upon Alexis St. Martin, and M. Bernard upon some of the inferior animals. Dr. Beaumont was a surgeon of the United States army, and St. Martin was a soldier in the army, who had his side so badly wounded in battle, as to leave, on recovery, an external fistulous aperture into the cavity of the stomach, through which Dr. B. performed many curious and important experiments.

We will now endeavor to give a condensed account of some of Dr. B's observations and experiments. "The inner coat of the stomach, in its natural and healthy state, is of a light or pale pink color, varying in its hues, according to its full or empty state. It is of a soft or velvet-like appearance, and is constantly covered with a very thin, transparent, viscid mucus, lining the whole interior of the organ. By applying aliment or other irritants to the internal coat of the stomach, and observing the effect through a magnifying-glass, innumerable lucid points, and very fine nervous or vascular papillæ, can be seen arising from the villous membrane, and protruding through the mucous coat, from which distils a pure, limpid, colorless, slightly viscid fluid. The fluid thus excited is invariably distinctly acid. The mucus of the stomach is less fluid, more viscid or albuminous, semi-opaque, sometimes a little saltish, and does not possess the slightest character of acidity. The gastric fluid never appears to accumulate in the cavity of the stomach, while fasting; and is seldom, if ever, discharged from its proper secreting vessels, excepting when excited by its natural stimulus of aliment, mechanical irritation of tubes, or other excitants. When aliment is received, the juice is given out in exact proportion to its requirements for solution, except when more food has been taken than is necessary for the wants of the system."

From the experiments of Dr. Beaumont, it appears that the quantity of gastric juice secreted by the wall of the stomach depends rather upon the general requirements of the system than upon the quantity of food introduced into the digestive cavity, and is a principle of the highest practical importance. "When the juice has become saturated," he says, "it refuses to dissolve more; and if an excess of food has been taken, the residue

remains in the stomach, or passes into the bowels in a crude state, and becomes a source of nervous irritation, pain, and disease for a long time."

"In diseases or partial derangement of the healthy function, the mucous membrane presents various and essentially different appearances. In febrile conditions of the system, occasioned by whatever cause,—obstructed perspiration, undue excitement by stimulating liquors, overloading the stomach with food; fear, anger, or whatever depresses or disturbs the nervous system,—the villous coat becomes sometimes red and dry, at other times pale and moist, and loses its smooth and healthy appearance; the secretions become vitiated, greatly diminished, or even suppressed; the coat of mucus scarcely perceptible, the follicles flat and flaccid, with secretions insufficient to prevent the papillæ from irritation. There are sometimes found, on the internal coat of the stomach, eruptions of deep-red pimples, not numerous, but distributed here and there upon the villous membrane, rising above the surface of the mucous coat. These are at first sharp-pointed, and red, but frequently become filled with white purulent matter. At other times, irregular, circumscribed red patches, varying in size and extent from half an inch to an inch and a half in circumference, are found on the internal coat. These appear to be the effects of congestion in the minute blood-vessels of the stomach. There are also seen at times small aphthous crusts, in connection with these red patches. Abrasion of the lining membrane, like the rolling up of the mucous coat into small shreds or strings, leaving the papillæ bare for an indefinite space, is not an uncommon appearance. These diseased appearances, when very slight, do not always affect essentially the gastric apparatus. When considerable, and particularly when there are corresponding symptoms of disease,—as dryness of the mouth, thirst, accelerated pulse, &c.—*no gastric juice can be extracted by the alimentary stimulus.* Drinks are immediately absorbed or otherwise disposed of; but food taken in this condition of the stomach remains undigested for twenty-four or forty-eight hours, or more, increasing the derangement of the alimentary canal, and aggravating the general symptoms of disease. After excessive eating or drinking, chymification is retarded; and though the appetite be not always impaired at first, the fluids become acrid and sharp, excoriating the edges of the aperture, and almost invariably producing aphthous patches and the other indications of a diseased state of the internal membrane. Vitiated bile is also found in the stomach under these circumstances, and flocculi of mucus are more abundant than in health. Whenever this morbid condition of the stomach occurs, with the usual accompanying symptoms of disease, there is generally a corresponding appearance of the tongue. When a healthy state of the stomach is restored, the tongue invariably becomes clean."

The gastric fluid, when taken from the stomach, was found by Dr. Beaumont to possess the power of dissolving various kinds of alimentary substances, when they were submitted to its action at a constant temperature of 100° (which is about that of the stomach,) and were frequently agitated. The solution appeared to be in all respects as perfect as that which naturally takes place in the stomach, but required a longer time. The following is one of many experiments recorded by Dr. B.

"At 11½, A.M., after having kept the lad fasting for seventeen hours, I introduced a gum-elastic tube, and drew off one ounce of pure gastric liquor, unmixed with any other matter, except a small proportion of mucus, into a three ounce vial; I then took a solid piece of boiled recently-salted beef, weighing three drachms, and put it into the liquor in the vial; corked the vial tight, and placed it in a saucepan filled with water, raised to the temperature of 100°, kept at that point on a nicely-regulated sand bath. In *forty* minutes, digestion had distinctly commenced over the surface of the meat. In *fifty* minutes, the fluid had become quite opaque and cloudy, the external texture began to separate, and became loose. In *sixty* minutes, chyme began to form. At 1 o'clock, P. M. (digestion having progressed with the same regularity as in the last half hour,) the cellular texture seemed to be entirely destroyed, leaving the muscular fibres loose and unconnected, floating about in fine, small shreds, very tender and soft. At 5 o'clock, the muscular fibres were nearly all digested, a few fibres only remaining. At 7 o'clock, the muscular texture was completely broken down, and only a few of the small fibres could be seen floating in the fluid. At 9 o'clock, every part of the meat was completely digested. The gastric juice, when taking from the stomach, was as clear and transparent as water. The mixture in the vial was now about the color of whey. After standing at rest a few minutes, a fine sediment, of the color of the meat, subsided to the bottom of the vial.—A piece of beef, exactly similar to that placed in the vial, was introduced into the stomach, through the aperture, at the same time. At 12 o'clock it was withdrawn, and found to be as little affected by digestion as that in the vial; there was little or no difference in their appearance. It was returned to the stomach; and, on the string being drawn out at 1 o'clock, P. M., the meat was found to be all completely digested and gone. The effect of the gastric juice on the piece of meat suspended in the stomach, was exactly similar to that in the vial, only more rapid after the first half hour, and sooner completed. Digestion commenced on, and was confined to, the surface entirely in both situations. Agitation accelerated the solution in the vial, by removing the coat that was digested on the surface, enveloping the remainder of the meat in the gastric fluid, and giving this fluid access to the undigested portions."* Many variations were made in other experiments; some of which strikingly displayed the effects of thorough mastication, in aiding both natural and artificial digestion.

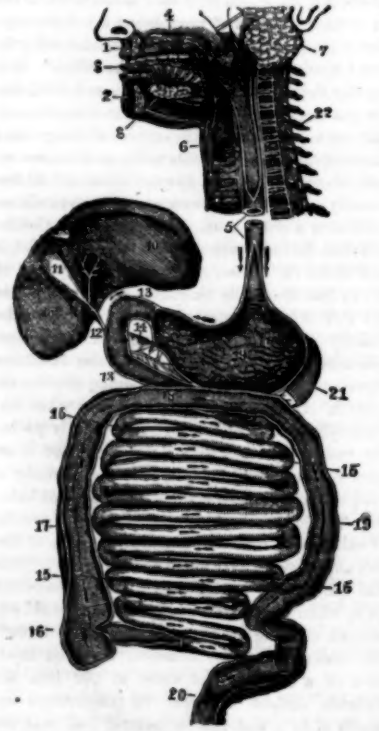
The attempt was made by Dr. Beaumont to determine the relative digestibility of different articles of diet, by observing the length of time requisite for their solution. But, as he himself points out, the rapidity of digestion varies so greatly, according to the quantity eaten, the nature and amount of the previous exercise, the interval since the preceding meal, the state of health, the condition of the mind, and the nature of the weather, that a much more extended inquiry would be necessary to arrive at results to be depended on. Some important inferences of a general characte

* Carpenter's Human Physiology, p. 436.

however, may be drawn from his inquiries.—It seems to be a general rule that the flesh of wild animals is more easy of digestion than that of the domesticated races which approach them most nearly. This may, perhaps, be partly attributed to the small quantity of fatty matter that is mixed up with the flesh of the former, whilst that of the latter is largely pervaded by it. For it appears from Dr. B.'s experiments, that the presence in the stomach of any substance which is difficult of digestion, inter eres with the solution of food that would otherwise be soon reduced. It seems that, on the whole, Beef is more speedily reduced than Mutton, and Mutton sooner than either Veal or Pork. Fowls are far from possessing the digestibility that is ordinarily imputed to them; but Turkey is, of all kinds of flesh except Venison, the most soluble. Dr. B.'s experiments further show, that *bulk* is as necessary for healthy digestion, as the presence of the nutrient principle itself. This fact has been long known by experience to uncivilized nations. The Kamschatdales, for example, are in the habit of mixing earth or saw-dust with the train-oil, on which alone they are frequently reduced to live. The Veddahs or wild hunters of Ceylon, on the same principle, mingle the pounded fibres of soft and decayed wood with the honey, on which they feed when meat is not to be had; and one of them being asked the reason of the practice, he replied, "I cannot tell you, but I know that the belly must be filled." It is further shown by Dr. B., that soup and fluid diet are not more readily chymified than solid aliment, and are not alone fit for the support of the system; and this, also, is conformable to the well-known results of experience; for a dyspeptic patient will frequently reject chicken-broth, when he can retain solid food or a richer soup. Perhaps, as Dr. A. Combe remarks, the little support gained from fluid diet, is due to the rapid absorption of the watery part of it; so that the really nutritious portion is left in too soft and concentrated a state, to excite the healthy action of the stomach.—Dr. Beaumont also ascertained that moderate exercise facilitates digestion, though severe and fatiguing exercise retards it. If even moderate exercise be taken *immediately* after a *full* meal, however, it is probably rather injurious than beneficial; but if an hour be permitted to elapse, or if the quantity of food taken have been small, it is of decided benefit. The influence of temperature on the process of solution, is remarkably shown in some of Dr. B.'s experiments. He found that the gastric juice had scarcely any influence on the food submitted to it, when the bottle was exposed to the cold air, instead of being kept at a temperature of 100°. He observed on one occasion, that the injection of a single gill of water at 50° into the stomach, sufficed to lower its temperature upwards of 30°; and that its natural heat was not restored for more than half an hour. Hence the practice of eating ice after dinner, or even of drinking largely of cold fluids, is very prejudicial to digestion.

From the foregoing statements we may conclude, that the process by which the food is dissolved in the Gastric fluid is of a purely Chemical nature, since it takes place out of the living body as well as in it,—allowance being made for the difference in its physical condition. That the na-

tural process of digestion is imitated, when the food is submitted to the action of the gastric juice in a vial, not only in regard to the disintegration of its particles, but as to the change of character which they are made to undergo, is proved by the fact, that the artificial chyme thus formed exhibits the same changes as the real chyme, when submitted to the action of the bile. The process of digestion, however, may be freely conceded to be vital, in so far as it is dependent upon the agency of a secreted product, which vitality alone (so far at least as we at present know) can elaborate; and all for which it is here contended is, that, when this product is once formed, it has an agency upon the alimentary matter, which, though not yet fully understood, is conformable, in all that is known of its operation, to the ordinary laws of chemistry. Thus, Digestion is conformable to Chemical solution,—*first*, in the assistance which both derive from the minute division of the solids submitted to it;—*secondly*, in the assistance which both derive from the successive addition of small portions of the comminuted solid to the solvent fluid, and from the thorough intermixture of the two by continual agitation;—*thirdly*, in the limitation of the quantity of food on which a given amount of gastric juice can operate, which is precisely the case with chemical solvents;—*fourthly*, in the assistance which both derive from an elevation of temperature,—the beneficial influence of heat being only limited, in the case of digestion, by its tendency to produce decomposition of the gastric fluid;—*fifthly*, in the different action of the same solvent upon the various solids submitted to it.



This is a representation of the organs of digestion, opened nearly the whole length. 1, Upper jaw. 2, Lower jaw. 3, Tongue. 4, Roof of the mouth. 5, Œsophagus. 6, Trachea. 7 and 8, The parotid and sublingual glands, two of the salivary glands. 9, Stomach. 10, 10, Liver. 11, Gall-cyst. 12, The duct conveying the bile to the duodenum. 13, 13, The duodenum. 14, Pancreas. 15, 15, 15, 15, Small intestine. 16, Opening of the small into the large intestine. 17, 18, 19, 20, Large intestine. 21, Spleen. 22, Upper part of the spinal column.

"It may be considered a well-established fact, that diluted acids alone have no power of chymifying alimentary substances, although capable of partially dissolving some of them; but that their presence in the gastric fluid is essential to its effectual action. The active agent in the process appears to be an Organic compound, to which the name of *pepsin* has been given. The properties of this have been investigated by Wasmann, who first succeeded in obtaining it in an isolated state; his observations were made upon the mucous membrane of the stomach of the Pig, which greatly resembles that of man."

THE MORNING AND EVENING OF LIFE.

Old age, in the minds of nearly all, is associated with feebleness, decrepitude, deafness, blindness, childishness, exhaustion, and other like fatuities, which render life a burden, and death desirable, besides arraying before us perpetually that grim monster who is soon to extinguish life in the agonies of death, and usher us into an untried futurity. But is this so? Does this idea comport with the true philosophy of nature and of life? Has it not the lie direct from all nature's institutes? Are not these and other evils of old age incidental, not a necessity? What is nature's afternoon and evening of life? Are not afternoon, sunset, and evening twilight quite as desirable as day-dawn and sunrise? And shall not she have provided for as happy an afternoon of life as her meridian or adolescence? Let us hear nature's phrenological answer.

Cicero has written elegantly, *de senectute*, but is it not time to issue a new edition? A former article has treated childhood, adolescence, and the morning or forenoon of life; this would treat of its evening or afternoon. Our text is, EVERY HUMAN BEING CAN AND SHOULD GROW HAPPIER AND STILL HAPPIER as life progresses, even up to its very close, and that a natural death is the happiest event of life. And the thought of this article is to show *how* to secure an end so desirable; and by converse, to show that all the ills and evils of the evening of life are consequent on laws violated at some anterior period. Ho, giddy youth, and busy manhood, listen! Life's present, by a law of nature, bears a perfectly reciprocal relation to its past and future. What we are at any one point of life consists only in what we HAVE BEEN AND DONE BEFORE, just as every river, at every point, is but the confluence of every spring, rivulet, and stream above. As far as they are muddy or clear, hard or soft, sweet or bitter, good or bad, will it be a compound of all. So life's every action and feeling from very infancy, even from before birth, combines in the formation of our present character and entity. You, at twenty, were the embodiment of every action and feeling of your entire life up to that point. At forty, you retain all you were at twenty, item by item, and have *superadded* to it every action and emotion between twenty and forty; and if you reach eighty, your entity, y own self, will then be but the embodiment or combination of all you have been and done before, together with the consequences of all these actions. And pray, what is a man at death but what, and only what, he has been through life, all summed up in his then existent personality?

Behold yonder good old man! In what *consists* his goodness, but in the accumulated *confluence* of all his previous good actions and feelings? If he had omitted one he would have been less good, or added another, have been still better. If he had added one bad act it would have been like dropping a drop of bitterness into a goblet of nectar; or done five or fifty bad acts, like five or fifty bitter drops commingling with the sweet. Or if he had done more bad than good, then the bitter would prevail over the sweet. If in building a house you commit one important error, you are obliged to build to it, which renders it unalterable. Every additional stroke and fixture take shape in part from this error; whereas, suppose instead you had made some excellent addition, every other valuable addition would have been rendered more valuable by this. At twenty you had one happy season, one bright spot, like the spring sun shining through a fleecy cloud on yonder hill-side. That light spot now becomes fixed. From every subsequent hill and vale of life the light of that spot is still visible, and sheds its brightness and heat on all subsequent life. Memory often recalls it till you live it over and over again, ten thousand times, and every time renders your personality the happier, the better. Or it may be a dark cloud of sin and vice which darkens or taints every subsequent year, day, minute of life. Then let the ante-meridian of life be what it should be, and its post-meridian will embody all the enjoyments of all former years, superadded to the joys of the present. Suppose a right life should render you perfectly happy up to twenty, suppose this right life continued, should render you happy between twenty and thirty, you would be as much happier at thirty than twenty, as you had experienced happiness from twenty to thirty, so that your thirtieth year would be much more desirable than the twentieth, and by a like law the fortieth should be happier than the thirtieth, and eightieth than fortieth, so that let a human being but live his *present* in accordance with nature's ordinances, and that person will perpetually grow purer, brighter, happier and better, until the very last moment of life, and that moment but the happy rays of an entire life, brought to their focal centre in a still happier death.

Reader, are you miserable at thirty? It is only because you have violated nature's laws before thirty, and the quantity of your misery is but the measure of your violation, whilst your happiness at any given period of life is but the summing up and legitimate consequence of those life-laws previously obeyed. Are you a miserable dyspeptic at forty? it is because you have violated the diatetic laws before that time, whereas, just as far as you have obeyed them does your digestion *improve* instead of declining, and thus of every other physical function and mental capacity.

Are you miserable in wedlock at that age, it is because you have violated proportionally the conjugal laws and relations up to that time; whereas, just as far as you have obeyed them, will your

conjugal state become more and still more happy. Are you a scholar at forty? That scholarship consists in the accumulated stores of knowledge, gathered one by one, hour by hour, day by day, up to that age. And thus of every animal, intellectual or moral quality and capability. Are you rich at forty? Is it not because you made money from day to day, up to that period? Suppose at twenty a circumstance occurred which enabled you to make a dollar; the next day or week, this dollar enabled you to make an additional quarter or half, and the second day or week this accumulated capital enabled you to double itself; at thirty, you have doubled this dollar a thousand times, and at each doubling, have also redoubled all those dollars and fractions accumulated all the way along up from twenty to thirty, and your fortune at forty is but the result of these repeated redoublings of your youthful patrimony. But suppose you had lost instead of gaining a dollar, you would thereby have lost your second, and all your subsequent opportunities for redoubling it, and in the loss of that dollar, would have lost every subsequent opportunity of adding thereto. So of the loss, and equally of the improvement, of every opportunity for acquiring knowledge, or character, or moral tone, and every other conceivable object of life. Thus, the loss of an hour at twenty prevents your improving every other hour of life, as well as you would have improved it if that hour had been properly improved; so that the loss of this hour becomes a mere speck, when compared with its ultimate consequences. The loss of one hour at twenty, is tantamount to the loss of many thousand hours, at sixty; just as the loss of one dollar at twenty, will affect your fortune at sixty, to the amount of thousands, perhaps even tens of thousands. Hence, to live properly the first part of life, is but to render its last part proportionally good and happy; whereas, every ill and pain of advanced age is caused by some wrong during some previous part of life. In short, the consequences of every act continue through our existence. Obey the physical laws during the fore part of life, and you will have, not only no decline of life, but a perpetual reinvigoration of the life power, from the cradle to the grave.

"Then how is it that we die?" you ask. I answer, death is but the spiritualizing of our powers, not their decline. The strength of youth need not decline with age, but only become mentalized and spiritualized, or be transferred from muscle to brain, from body to mind, from the physical to the mental man. Nor will even physical weakness supervene this acquisition of mental and moral strength, but in its exalting exercise, the body will not even take cognizance of the transfer. If youth with an inheritance of health obeyed the physical laws, old age would never be gloomy or decrepit, but always sprightly, light of motion, until, approaching death, the increasing activity and even rapture of the mental man would induce that physical inertia consequent on the highest order of mental activity, so that physical inaction would be a mental gain, instead of physical loss, and only contribute to our happiness, not curtail it. And think you the old man's appetite is less keen in its relish of flavors, than that of his youth? Less ravenous, it may be, but far more exquisite it certainly may become, provided it has not been abused, but has been properly trained through life. The octogenarian may eat less than the growing youth, but by properly training his appetite, up to eighty, might enjoy a day's eating then, more than a month's eating at fifteen, and when finally, physical appetite gives place to a mental relish for the fruits of paradise, it is appetite not lessened, but *transferred* from physical to mental food. Tell me not that warm-blooded youth is more wholesouled in quantity, power or quality, than the afternoon of life. Love, properly cemented in youth, and its laws fulfilled up to maturity, is far deeper and broader in quantity, and more Platonic in quality, at forty, than twenty, and eighty than forty. Love, to be complete, must be based in a personal knowledge of the excellencies of the beloved object. Suppose, then, a bride to have truly lovely qualities, her young husband does not, cannot know those qualities until after long experience shall have not merely strengthened, but also *exhibited* them. He loves her good qualities, and if she lives in accordance with nature's laws, those qualities will improve with age; and hence, her loveliness will correspondingly improve, and as we naturally love that most to which we are most accustomed, the more he sees of her good qualities, the more he loves them, and the longer those qualities are beloved, the stronger will that love become. And thus of her love for him. Young lovers fall as far below the depth and tenderness of which they are capable in after life, as the boy at ten falls below the dexterity and strength of which he is capable at forty. Use tends to increase everything, and love of course is not an exception.

To apply this law to intellectual culture:—A boy at sixteen attempts to learn a new language: his grandfather at seventy-five makes a like attempt. If the old man has learned several languages before, he has of course learned the general *principles* of language, its grammatical construction, the meaning of a great variety of words nearly alike in various languages, the general rules of syntax—and, accordingly, can pursue his lingual studies to far greater advantage than the boy. But, it is argued, his memory is far less retentive. This is not necessarily so. Memory can and should strengthen with age. Even the memory of the old man could and should exceed that of the boy, besides all his other facilities for acquiring this language: and thus of mathematics, philosophy, and every other study. The old man has the advantage, in every respect, of the young man and boy.

This law applies equally to morals. But why enlarge? To present the general *law* of increase with age is our single purpose. Take yonder acorn as an illustration: Properly planted, it first swells, then sends down its root; next sends up its shaft. A second season sends out several side branches, besides pushing its main shaft a story higher; and the third, fourth, and fifth years these branches spread: and thus it goes on enlarging. At its twentieth year it sends out several new side branches, and these again spread; and thus, every year enlarges its original trunk, and every single limb but reinvests every limb, besides reincreasing in a vastly accumulating ratio.

So childhood consists principally in a single shaft, having very few side interests; but every year not merely enhances the size, and lifts still higher its main shaft, but reincreases each and all its *side* branches, and places branches on these branches, and new branches upon this tier, so that every year of life accumulates both the number and value of life's interests.

The child cares for sleep, food, and a few other physical pleasures, and relishes these only by their quantity, or *how much*, instead of how good. From seven to fourteen, new or side pleasures are added, besides enhancing all his former ones. From fourteen to twenty-one, new branches make their appearance; among others, the love branch. From twenty to forty these side branches, as before shown, become larger and stronger, besides sending out one after another of those side branches by every child whose being he originates; and each of these children is more precious to him at ten than one, and at twenty than ten; and their children becoming even more precious to him than his own, and become more and still more so as the number and years of his grandchildren increase; so that whereas at fifteen he had no pleasure in children, and experienced the merest moiety of pleasure in this faculty, at seventy-five he loves his children with inexpressible fondness, and loves their children all the more because the children of those he loves, besides having a far greater number to love; and thus of every other interest, and pleasure, and acquisition and aim of life. It is the order of nature—of progress, that every end, interest, and pleasure of life should accumulate as that life progresses. Progress is Nature's ever developing institute, applicable to every thing which appertains to man. In other words, life's instrumentalities or means of pleasure, by a law of nature, increase with age. Then, since all our *capabilities* and instrumentalities of pleasure increase as life advances, why not all our pleasures themselves?

By an ordinance of nature all our faculties deepen and strengthen with age; and since all our pleasures are the natural product of these powers, why should not the old man be as much happier than the young as his powers have been strengthened by use? Then dread not old age. Rather seek it. Regret not that you will never again be young, but rather rejoice that you are becoming older and still older from day to day. Or rather, let neither past nor future divert you from the all-important PRESENT. To live each minute, day, year AS IT PASSES, is life's true secret, and will render the afternoon and evening of life supremely and superlatively happy. Well might youth wish to pause till they had learned to live, but this is not possible, hardly desirable, for in and *by* living let us *learn* to live. By every error we commit let us learn to commit no more like it, and by every right action and feeling let us learn to repeat them. Let us study nature's philosophies and laws as life's great study, and practise them as life's great work. Let us *learn* and know all we can, and then *do* the very best we know. Let every action be put forth in view of that unending future of which the present forms a constituent part. But, youth, be wise, be good in the present, so shall increasing goodness and happiness be yours for ever and ever.

One closing word about death and futurity. To suppose that it is necessarily painful, is to suppose that this part of nature's works violates all the laws and facts of her other operations. This cannot be. Death is just as complete a provision for good as life itself. Nor need it have any bitterness in order to secure this good. Death is a blessing—*always*—never a curse, and, come when it may to darling youth, growing adolescence, meridian, manhood, or declining age, it comes invariably as a blessing. No human being can possibly die until it is more desirable to die than live, nor until if he lived longer he would suffer more than enjoy. Even violent death is a blessing, whether caused by accident or sickness, acute or chronic, it is a deliverance from pain, never a cause or source of it. Nor will you ever die a premature death until you have so far broken the physical laws, that life, if longer continued, would be a burden and a curse rather than a blessing. It is as a deliverance from the curse of violated law that death comes. And whenever it comes anywhere from manhood up to the point when the life powers having perfectly completed their work, and fully developed an immortal principle, yield themselves to dissolution in order that this spirit principle may enter upon a higher state of existence, it comes *only* to bless. OBEY THESE LAWS and you will die a pure *inanition*, not of pain, and that death will be more pleasurable than any feature or portion of life before, both in and of itself, and on account of that higher order of pleasure of which it is the vestibule. Tell me not that those quiverings of the flesh, contortions of countenance, rollings of eye, so often seen in the death struggles, are indices of pain. Are they not as likely to be caused by pleasurable as painful sensations? Are they not rather like those spontaneous twitchings of the flesh and limbs often experienced when just falling asleep? Is not the analogy between sleep and death complete? And since going to sleep at night is as pleasurable as any labor or enjoyment of the day, shall not going to our final rest after the labors of life be as pleasurable as any of life's other pleasures? Then fear not death, but simply learn to LIVE RIGHT.

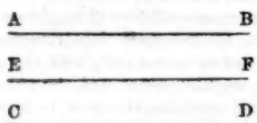
One closing word about our unending future. The immortality of the soul phrenological science completely demonstrates. This point assumed, not discussed, please observe that this part bears to that exactly the same relation which the fore part of life bears to its latter part. As all our life up to our fortieth year influences our forty-first, so every feeling, action and nature of our lives, up to death, correspondingly influences our subsequent being. Our state and being immediately after death will be just what this life will make them, and why shall not every period of that life which is to come bear on its subsequent life just as every period of this bears on all subsequent ones? That is, as all our actions—our entire being—up to forty is a summary of and goes to constitute our forty-first, so shall not our entire being up to death go to constitute and be the embodiment of ourselves for ever after? Our unending future must have that same division of periodicity which appertains to this state. Shall not, then, every year or day of eternity bear on all our subsequent existence, just as our entire entity up to fifty bears on all subsequent to fifty? This being thus, life becomes infinitely important down to its every moment. Let it then be duly IMPROVED. And if this article shall subserve the infinitely important end of prompting its readers to learn and obey life's laws, it will attain the end for which alone it was written.

A NEW THEOREM.

BY F. W. E.

That the following enunciations, viz.:—"Two parallel lines are throughout at the same distance from each other," and "Two lines, A B, C D, (fig. 38), which are parallel to a third, are parallel to one another," *are not theorems but axioms, or exemplifications of axioms, which amount to the same thing.*

FIG. 38.



DEMONSTRATION.

Let us, in the first place, refresh our minds with the definitions of an axiom and of a theorem, that we may distinctly perceive their specific difference; and, secondly, present the received definition of parallel lines. If, then, upon a comparison of this definition with the above enunciations, it shall appear that nothing is comprised in the latter but what is expressed also in the former, or is easily deduced from it without an act of reasoning, our point is established.

"An axiom," says Legendre,* "is a proposition the truth of which is self-evident." Mr. Hodge† defines it by saying, "It forces our assent by irresistible evidence, as soon as we understand the terms by which it is expressed. It cannot be proved; because no principles more evident can be assumed, from which its truth could be deduced."

"A theorem is a truth which becomes evident by a process of reasoning called a demonstration."

Hence it appears that axioms and theorems are specifically distinguished from each other in this, that the latter *require* a process of reasoning, in order that their truth may become manifest; while the former are plain and self-evident without it.

"Two lines are said to be parallel," says our geometer, "when, being situated in the same plane, and produced ever so far both ways, they do not meet."

"Parallel," says Walker, when an adjective, means "extended in the same direction and preserving always the same distance;" and when a substantive, "Lines continuing their course and still remaining at the same distance from each other."

* Elements of Geometry, p. 3. † Logic, p. 69.

It remains, now, that we compare this last definition with the above enunciations, viz.:—"Two parallel lines are throughout at the same distance from each other," and "Two lines, A B, C D, (fig. 38,) which are parallel to a third, are parallel to one another."

Let E express the sense of the first enunciation and D the definition of Walker. If we apply the one to the other, it will be seen that E falls upon D, fills the same space, and perfectly coincides with it throughout; therefore they are equal: for not only are two magnitudes, lines, surfaces or solids equal, when, being applied the one to the other, they coincide with each other entirely,—that is, when they exactly fill the same space; but two propositions, which mean the same thing, which, being analyzed and compared, are found to contain precisely the same simple ideas, are equal. But a knowledge of D being an indispensable prerequisite, in order to proceed to any demonstration concerning parallel lines; and the possession of this knowledge, on the enunciation of a theorem, always being presupposed, it follows that D is equal or equivalent to an axiom; but D and E being equivalent, E is separately equivalent to an axiom. Therefore, the first enunciation is not a *theorem*—something to be proved—but an *axiom*, or an exemplification of an axiom, which amounts to the same thing.

Let E′ express the second enunciation and D′ the definition of parallel lines in general. We shall find, upon comparison of the one with the other, that the announced relations of E′ are necessarily implied in the definition D′.

In order to make this comparison take the three lines A B, C D, and E F contained in the enunciation E′, two of which, A B and C D, are respectively parallel to the third, E F; from our presupposed knowledge of the definition D′ we perceive immediately and intuitively, that the lines A B and C D must necessarily sustain towards each other the same relation of parallelism which they sustain to the third, E F; for parallelism is in relations what equality is in quantities. If, therefore, two quantities, each of which is equal to a third, are equal to one another, it is equally plain that "two lines, A B, C D, which are parallel to a third, E F," are parallel to one another. Indeed, it is impossible for us to conceive that there could exist three lines, any two of which are parallel, and not at the same time perceive tnat this mutual relationship exists between them all; for so soon as we admit, for the sake of trial, that one of these lines is in the least inclined towards the others, we perceive the inconsistency of the admission with our assumed hypothesis. No measurement can be so soon performed—nor, when performed, can the conclusion appear any more certain. But that "two quantities, each of which is equal to a third, are equal to one another," is an *axiom*; therefore, that "two lines, which are parallel to a third, are parallel to one another," *is an axiom.*

It is therefore manifest that the following enunciations, viz.:—"Two parallel lines are, throughout, at the same distance from each other," and "Two lines, A B and C D, (fig. 38,) which are parallel to a third, are parallel to one another," are not theorems but axioms, or exemplifications of axioms, which amount to the same thing.

CHARACTER AND BIOGRAPHY
OF
LYMAN BEECHER, D. D.

LYMAN BEECHER was born at New Haven, Connecticut, October 12, 1775. He was the son of David Beecher, who was the son of Nathaniel, who was the son of Joseph, who was the son of John; who was born over the water, in Kent Co., England, and came to New Haven with his mother, not with the very first, but among the earliest settlers of New Haven colony. His mother lost her husband after they had embarked, but before the ship had left the harbor. She was a physician and midwife. The Company promised if she would still go with them and afford them professional services, that they would make her support their care. Thus she and her son John, the ancestor of all the New England Beechers, came to America. Widow Beecher pursued her vocation in the town of New Haven, apparently to the satisfaction of all concerned; for the Town gave her a piece of ground for her services in giving the rising generation a fair start in life. The field lay on what was then Sodom Hill, but is now called Mount Pleasant, lying on the old road to Milford. One part of it was sold, and on that now stands the State Hospital. The other portion remained in the family until after the birth of Dr. Beecher, and was then sold. Lyman was born in a dwelling which is still standing in New Haven, on the corner of George and College streets. Some ancestral traits will be of interest, at least to those curious in physiological heraldry. The Beecher blood was dashed with hypochondria. Dr. Beecher himself, his father, and his grandfather, were, in early life, great sufferers from that cause. But in each case, it was confined principally to early life, and wore out with years, leaving a serene and cheerful old age. All his ancestors were devout and professedly religious men. Dr. Beecher's great-grandmother was the daughter of a full-blood Welsh woman—a Roberts. Thus the blood of the Beechers received a happy mixture of Welsh blood, with its poetry and music, and its insatiable and intolerable love of genealogy; for no Welshman ever lived who had not a clear genealogical turnpike opened up to Adam's very front door-yard.

The wife of the second colonial Beecher, viz.—of Joseph Beecher, was a woman of great piety, and of eminent *faith*. She had a large troop of children. She used to say: "All my children *will be* converted; I may not live to see it, but they will surely be brought in." This was fulfilled. The last child was seventy years old before he was gathered into the church, and that after her death.

Dr. Beecher's own mother was a *Lyman*, a family whose blood was made of champagne—joyous, sparkling, hopeful, and against all rebuff and disappointments, hoping still. He was a seven months child, and extremely feeble. His mother died four days after his birth. Her sister, Mrs. Lot Benton, of North Guildford, having no children of her own, took Lyman, at about three months of age, and kept him in her family until he began to "fit for college," which was about his seventeenth year.

Lot Benton was a thorough original; a great, kind heart, hedged about with scolding, ill-natured manners. Whoever asked a kindness of him surely got it, and a good deal more besides. If one came to borrow a hoe, "why don't you have hoes of your own—what do you hang on to your neighbors for? Here, come back—take the hoe, will ye? I suppose you never will return it—will brake it, I guess." On one occasion Lyman Beecher was driving an ox team so as nearly to graze a plough which lay upon the ground. "There, there, Lyman, you have run over that plough and broke it all to pieces." "Why, uncle Lot, I havn't touched the plough." "Well—I'd a great deal rather you had, than to have gone so near it." Those who wish to see the character drawn out will find it in Mrs. Stowe's May-Flower, in the person of *Uncle Tim*.

The manner of Lyman's studying was in this wise: One day while gathering apples in an orchard, Uncle Lot says: "Lyman, how should you like to study, and go to college?" No reply was made, and the work went on. The next day as they were busy at the same work, Lyman says, "Uncle Lot, I think I should like to go to college." Nothing more was said on either side. But the lad was forthwith prepared for studying. One year of preparation in these days sufficed for entering college. He entered Yale College, under the presidency of Dr. Dwight, in September, 1793, at the age of eighteen.

The class of 1797, of which Dr. Beecher was a member, was distinguished for very uniform good scholarship. Near the close of his life Dr. Dwight declared that, "though several classes had afforded some greater men, yet he had never instructed more than one other class which as *a whole* possessed an equal amount of talent." They were remarkable for longevity. Twenty-four of the thirty-seven were alive in 1848.

One night, Mr. Beecher was awakened by a sound at his window, as if some one were drawing cloth through a broken pane of glass; springing up, he dimly saw his clothes disappearing through the broken window—a thief having taken a fancy to them. Waiting for no ceremonies of toilet, he dashed out through the door after him. The rascal dropped the clothes at once, and put himself to his best speed. But Lyman was not a man to be easily out-run, especially when thus stripped to the race. After dodging a few times, and turning several corners, the catiff was seized and marched back by the eager student. He ushered him into his room, compelled him to lie down on the floor by the side of his bed while he more comfortably ensconced in the bed, lay the night long watching him;—the silence being broken only by an occasional "*lie still, sir.*"

In the morning the culprit was taken before a magistrate, who was evidently a lineal descendant of Justice Shallow. The magistrate, after hearing the particulars, asked Mr. Beecher, "whether in turning the corners he lost sight of the man at all." He replied, that he was out of sight but a second, for he was close upon him. "Ah, well, if you lost sight of him *at all*, then you cannot swear to his identity," and so the man was discharged. Mr. B. met the fellow several times afterward, but could never catch his eye.

Mr. Beecher studied theology with Dr. Dwight for a year, and then, according to the custom of the time, was ready to preach on probation for settlement. We have heard him say that he had great fear that there would be no place left for him, the only vacancy that he knew of being filled about the time. It is reported of him, that when asked to preach on Long Island, he replied, that he had but one sermon in the world, and did not know as he should ever have another.

Of his settlement at East Hampton, L. I., the following is his own account, contributed to a volume of memoirs of the class of 1797, edited by Dr. Murdoch, of New Haven:

"I pursued my theological studies at Yale College, under the instruction of President Dwight; and in September, 1798, was licensed to preach the Gospel by the New Haven West Association. In November of the same year, I commenced preaching on probation at East Hampton, Long Island, where I was ordained in September, 1799. My church and people were of Puritan origin, and had from the beginning enjoyed evangelical instruction, and under my predecessor (Dr. Buel) had been blessed with repeated and glorious revivals of religion. In the latter part of his life, however, numbers of young men of his congregation had become unsettled in their confidence in the Bible and its doctrines, and held revivals of religion in light estimation. I was favored with three seasons of special divine influence, in which almost three hundred were added to the church, and before which the epidemic skepticism passed away. In the third year of my ministry, my labors were suspended for three-fourths of a year by fever and subsequent debility, from which I arose by rural exercise and manual labor. During my residence at East Hampton, I published four sermons,—the History of East Hampton,—on Duelling,—on the Government of God desirable,—and a funeral discourse."

During intervals of his labors, Mr. Beecher was remarkably fond of both fishing and hunting, and the sea-shore gave abundant opportunity for both pursuits, and the inlets, bays, and streams, which had fish or wild fowl, were familiar to him. His first six children were born at East Hampton. His wife was Roxana Foote, of Guildford, Ct., a woman of rare natural disposition and endowments, whose name, at this distance of time from her early death, Dr. Beecher cannot mention without emotion. He was settled upon a salary of $300 per annum. After the birth of six children, he informed his people that he could not live upon so small a sum; but offered, if his salary were raised to $500, *to remain with them for life.* They refused to increase the salary, and lost their pastor. We give again, in his own language, the brief account of his next settlement:

"In 1810, I received and accepted a call from the 1st Congregational church in Litchfield, Conn., over which I was installed in June of the same year, and with which I continued my connection till March, 1826,—the most laborious part of my life. In this period I published sermons on the Reformation of Morals;—Building up of waste places;—the death of Obookiah;—the Bible a code of Laws;—the Faith once delivered to the Saints—the Design, Rights and Duties of local Churches;—and the means of National Prosperity. I also assisted in the establishment of the Connecticut Domestic Missionary Society, the Litchfield County Foreign Missionary Society, the Connecticut Edu-

LYMAN BEECHER, D.D.

cation Society, the American Bible Society, and the Christian Spectator and Connecticut Observer. These various efforts, with protracted labors at home and abroad in revivals of religion, again interrupted my health, and suspended my pastoral labors for six months, and sent me again to rural exercise and manual labor for more than a year.—The results of my labors in Litchfield in souls renewed, was about the same as at East Hampton."

It was while at Litchfield, that Dr. Beecher recommended *total abstinence*, as a remedy for intemperance earlier, it is supposed, than any other one. As early as 1811, the association of which he was a member, had appointed a committee to report what could be done to stay the progress of intemperance. That report was made, and after lamenting the wide-spread danger, discouragingly said, that there seemed no feasible remedy. Dr. Beecher immediately moved that the committee be discharged, and that another committee be appointed to report *instanter*, a remedy for intemperance. He was made chairman, and reported resolutions at once, recommending to all Christians and good men, the immediate and entire abandonment of intoxicating drinks. The resolution was carried, and this, it is believed, was the first step taken in the great history of Total Abstinence.

The famous six sermons upon Intemperance were first written and preached in Litchfield. A very dear friend of Dr. Beecher, living about four miles from the church, became intemperate. This fact moved all his affection and zeal. The six sermons were born of a heart full of love and grief, and although this did not save the man whose case inspired them, they have, doubtless, saved millions of others; and are still read in almost every language of the civilized world.

We add again the Doctor's account of his removal to Boston and to Cincinnati:

"In 1826, I received and accepted a call from the Hanover Church in Boston, where I continued six and a half years. This, though not the most exhausting, was the most active and intensely interesting period of my Pastoral life. These years were employed almost constantly, at home and abroad, in promoting revivals of religion, in which many of the orthodox churches were quickened and their numbers and moral power greatly augmented. In this time the "Spirit of the Pilgrims" was established for the elucidation and vindication of the truth; and it performed successfully the work of its day. My publications while in Boston were, a Review of the Review of my Sermon on the faith once delivered to the saints;—a Reply to Johnson's Report on the Sabbath;—the Groton Report, establishing the rights of the Congregational Churches of the State, in opposition to sundry legal decisions against them;—Infant Damnation not a doctrine of the Calvinistic system, in reply to sundry anonymous writers;—the Resources of the Adversary, preached before the Board of Foreign Missions;—the Memory of our Puritan Fathers, preached at Plymouth at the anniversary of the landing of the Pilgrims;—Dependence and Free Agency;—Six Sermons on Intemperance, preached in Litchfield, and delivered again and published in Boston.

"In 1832, I received a call to the Presidency of Lane Seminary near Cincinnati, Ohio, where pledged endowments of sixty thousand dollars depended upon my acceptance; and considering the immense importance of an early educated, evangelical ministry at the West, I accepted the call, and for ten years performed the official duties of the Institution, and the duties of the Pastoral relation in the 2nd Presbyterian Church of Cincinnati. Since that time, though released from Pastoral care, I have, till within a few Sabbaths, been habitually employed in preaching the Gospel as before. The trials attendant on rearing such an institution in a new country, and the agitation of the vexed question, and the rendings of the church, and the loss of funds by the pressure of the times, have not been small; but they hav been lightened by the tokens of Divine favor, in the addition to my church of many who will I trust be saved, and in enabling us to send from the Institution, three hundred young men to preach the Gospel to the West and East, and North and South, and to the Pagan and Papal lands, and the islands of the sea.—Before my arrival at Cincinnati, an active opposition commenced—a part of the general movement which tried Duffield and suspended Barnes, and eventuated in regular charges against me, and a trial and acquittal before Presbytery and Synod. The case was then carried by appeal to the General Assembly, and by the prosecutor withdrawn at his own request, and, as he said, by advice of the friends he had been accustomed to consult, and with, I believe, the unanimous consent of the General Assembly, certainly by a very large majority.—My publications in Cincinnati have been, a small volume on Political Atheism; another, entitled a Plea for the West; also a Plea for Colleges; and Lectures to Artisans, published only in the newspapers.

"In my domestic relations, my cup of mercy, though not unmingled with bitterness in the death of two beloved wives, two infants, and an adult son in the ministry, has nevertheless been filled with pure, copious, and habitual enjoyment, especially in the early conversion of my children, and their blessed affection for me and usefulness in the Church of God."

Dr. Beecher is very compactly built, with a broad and deep chest; head, large, and evenly developed; hair, black and erect, receding from his forehead; eye, light blue, inclining to gray; nose, large, long, and broad; large mouth; forehead, wide and square, rather than high, but much higher, in fact, than at first appears. From early life he has been quick, restless, energetic, persevering, and bold. These traits have so strong a development in public, that an impression exists that he is of a hard and severe character,—than which nothing can be more untrue. He is, in social life, deeply affectionate, tender, and simple; in hours of relaxation fond of amusement, of music, of field sports, and inclined to mirthfulness. His mind is logical, rather than metaphysical. His reasoning is that of strong common sense. His most powerful efforts have been those in which his social and moral emotions have received embodiment and expression. It was his *heart*, translated into *intellect*, that constituted his power. It was not Intellect, narrowly defining and coldly arranging objective truths, that gave him success. Though, after the manner of New England, he studied a logical method, and we believe valued highly his power of definition and statement, and not without good reason either, yet other men, his inferiors, have surpassed him in this. But, when he had marked out the framework of his discourse, and, with no inconsiderable ability, had gone through with the process of construction and proof, he then began to develop his peculiar characteristics,—those in which the secret of his power lay. On one occasion he defined his ideas of eloquence by saying, *"Eloquence is logic set on fire."*

Propositions must be proved. But great moral truths have no proof except in the experience of the speaker and the consciousness of the hearer. When his own emotions were thoroughly aroused,

when he *took truth for granted*, when his thoughts were transfused with the most fervid moral and social emotion, and with vigorous tongue, in original phrase, interlaced with short and glancing illustrations, which glowed and ripened into the boldest metaphors, then his power was electrical, and the audience was swayed to his sonorous voice as trees in a forest to the rush of autumnal winds.

There was, in his prime, an admirable mingling of reasoning, fact, emotion, wit, and pathos. These qualities were not pre-arranged, but spontaneous; they were not in the sermon as prepared, but in his heart who prepared it.

Dr. Beecher was never a student, but always a laborious thinker. He studied with his pen, not with books.

From early in his career, he was afflicted with an irritable stomach, which, at some periods, threatened to lay him aside from the ministry. And nothing but the most skilful care tof his own health enabled him, through a long life, to go through labors which seem almost incredible. At East Hampton, on Long Island, he was familiar with every bay and fishing-ground, and with every cove where wild fowl resorted. At Litchfield, Ct., he resorted to the soil, without forsaking the rod and the gun, for exercise and health. In Boston he rowed in the harbor; sawed his own wood; brought home his marketing, for the sake of the exercise of carrying a basket.. Dr. Beecher became quite an adept in filing and setting saws. Much of his studying was done over his saw, or with file in hand. On one such occasion he said, "The way to write easily is to get all your thinking done first, and then let the hot metal out into the mould of your plan," having in his mind the idea of metal casting. When the weather was bad, the Doctor resorted to his cellar, where several loads of sand were stored, which were lustily shovelled from one side of the cellar to the other—like many metaphysical disputes and casuistries—sand at best, and by discussion only changed in place. He walked quick, worked quick, thought quick, and rode quick. His absorption in thought gave rise to absent-mindedness and to forgetfulness, frequently to ludicrous stories. On several occasions he entered his neighbors' houses in Boston, for his own, and was only awakened to the truth by the appearance of the kind mistress, who saluted him with — "Good morning, Doctor; we are happy to see you in our house." But, in one case, in another mansion, where the good woman had a sweet heart, but a sour tongue, the salutation was more piquant:— "Doctor, if you can't find your own house, I wish you would hire a man to go and show you." Well, it was not very comfortable to have a neighbor walk into your parlor, with two or three clergymen in train, appropriate your chairs, call for the servants, and even stand at the foot of the stairs, calling out, "My dear—my dear—will you come down!" Hundreds of stories related of the Doctor are mere fictions, or ascriptions to him of things belonging to other men. He once said, if I should write my own life, the first volume should contain the things which I did *not do* and did *not say*. Nevertheless, not a few are authentic.

In a trip along the coast of Connecticut, in a small craft, for his health, being detained by baffling winds, it was in the midst of church service, on a Sabbath morning, that he landed at a village where only the clergyman knew him. He was in full sea-rig. His entrance to the audience-room attracted no attention. But, when, during the prayer, after sermon, he walked up the aisle, and began to ascend the pulpit steps, all eyes were on him. The young people tittered, and the *tithing men* began to look authoritative, as if business was on hand. The officiating clergyman, at the close of his prayer, cordially shook him by the hand, to the growing surprise of spectators,—not lessened by the Doctor's rising to make some "additional remarks." "When I began," we once heard the Doctor say, "I could see all the good and sober people looking rather grave at such an appearance, while all the young people winked at each other as if they expected some sport. But it was not long before I saw the old folks begin to look up and smile, and the young folks to look sober." If any one has heard Dr. Beecher, in one of his best moods, in an extemporaneous outburst, they can well imagine with what power an application would come from him, and how the sudden transitions of feeling, and the strange contrasts between his weather-beaten appearance and seaman's garb, and his impassioned eloquence, would heighten the effect. When he concluded, he turned to the pastor and said, "How could you have such a grand sermon without any application!" "I wrote out the body of the sermon, meaning to extemporize the application, but after you came in it scared it out of my head."

The finest effects of his mind are not in his writings, but were unexpectedly thrown out in the inspiration of speech, or in conversation. Many apothegms and condensed sentiments, if recorded, would become popular proverbs.

Dr. Beecher is now nearly eighty years old, and is still vigorous and laborious, and his simple habits, his temperance, his buoyancy and cheerfulness, and his habits of physical exercise, have prolonged a life to this degree, which began feebly, and which has always been threatened by dyspeptic ailments. In closing, we may put together several characteristic incidents of various kinds, the authenticity of which we believe unquestionable.

He once received from several ladies of his church a sum of money for his wife, to be used in the purchase of a carpet. It was put into his vest-pocket, and of course forgotten. There was about this time an effort on foot to build an orthodox church in a neighboring village, in which the doctor took great interest. Meeting a gentleman engaged in the enterprise, the doctor expressed a wish to give something towards it himself. Ransacking his pockets, he discovered this carpet money, and expressed great surprise at its unexpected presence. "Why—when did I get this! I am sure I don't remember this money! Well, it is plain Providence provided it for this cause." Accordingly it was given. Not many weeks after, the lady donors called, expecting to see a new carpet on the pastor's parlor. Nothing was known about it by the good wife. The doctor was summoned, and the case stated. "There, that was it! I remember now. It must have been the money I gave for that church!"

When he was about sixty-eight or seventy years of age, he visited a son in the interior of Indiana. One of the young men in the village kindly volunteered to go out with the doctor to hunt. After some success, they took a little circuit each of his own. Hearing the doctor's gun, Mr. V. made toward him, and to his surprise, saw the doctor, boots and coat off, about twenty feet up a tree, and making his way nimbly. "Doctor, doctor, what are you doing!" "I shot a squirrel, and he ran into that hole, and I'm determined to have him out." It was only on the promise of his young friend that he would go up and eject him, that he consented to give over this perilous climbing.

When about seventy-five years of age, he spent a fortnight in the eastern part of Maine. A party of gentlemen, at Calais, went with him, upon a little expedition into the Indian territories, spending several days there hunting and fishing. When about to embark upon a chain of lakes in birch canoes, the Indian guide, Etienne, rather objected to so old a man attempting the adventure, fearing that he would give out. He did not know his man. The doctor rowed with the best of the youngsters; caught more trout than all the party together, and returned each day from the various tramps, in the lead; eat his fish on a rock, with a sea-biscuit for a trencher, and fingers for knives and forks; slept on the ground upon hemlock branches under the tent, and, at length, the Indian guide went from the extreme of depreciation to the highest expression of admiration in his power,—saying, "Ah! old man, all Indian!"

While residing on Long Island, in early life, he was returning home just at evening from a visit to old Dr. Woolworth. Seeing what he thought, in the dark, to be a rabbit by the road-side, a little ahead, he reasoned with himself—"They are rather tender animals—if the fellow sits still till I come up, I think I could hit him with these books," a goodly bundle of which he had in his handkerchief. Hit him he surely did; only it proved to be not a rabbit, but a skunk. The logical sequences followed, and he returned to his family in anything but the *odor* of sanctity. In after life, being asked why he did not reply to a scurrilous attack which had been made upon him, the doctor answered, "I discharged a quarto, once, at a skunk; and I then made up my mind never to try it again."

During the prevalence of a revival in his church, in Boston, the number of persons desiring religious conversation was so great, sometimes amounting to several hundred, that he was accustomed to employ younger clergymen to assist him. On one occasion, a young Andoverian was conversing with a person who believed herself to be converted, within the doctor's hearing. The young man was probing the grounds of her evidence, and among other questions, was overheard asking the lady, if she "thought that she was willing to be damned for the glory of God." Instantly starting up, the doctor said to him, "What was that you were asking!" "I was asking her if she should be willing to be damned for the glory of God." "Well, sir, would *you* be willing!" "Yes, sir, I humbly hope I should be." "Well, then, sir, you *ought* to be damned." And, afterwards, he took occasion to enlighten him to a better theology.

The position which Dr. Beecher has held in the great moral movements of the day remain to be stated. Long may it be before his removal to a better land shall give any pen occasion to write this honorable portion of his history.

THE NATURAL HISTORY OF MAN.

BY WILLIAM C. ROGERS.

PREFACE.

I PROPOSE to furnish to the readers of the AMERICAN PHRENOLOGICAL JOURNAL a series of articles upon the Natural History of Man, in which I shall endeavor to bring the researches of the most profound Anatomists, Physiologists, and Naturalists, within the reach and comprehension of all, divesting the subject of the formalities of a strictly scientific investigation, and yet adhering closely to all the facts and arguments which such an investigation sets forth. In a word, I shall endeavor to *popularize* the study of the Natural History of Man.

My reasons for doing this are many. I hope thereby to call the attention of the young to a subject which opens a vast field for the exercise of all their intellectual powers, the study of which shall divert them from the perusal of the poisonous emanations of a corrupt press, and the pursuit of which shall enrich, ennoble and adorn their intellects, upon whose cultivation and power the future of our nation depends.

I do not write so much for the middle-aged and the old. With them the twig has long since bent, and the tree has become irreparably inclined. I write for those who, like myself, are just stepping upon the stage of action, and who shall soon possess all that is to be possessed on this earth, who shall flourish for a season, and who shall, departing hence, leave the impress of their intellect upon the destinies of a race—a nation—a world.

The class for which I write are most of them poor in this world's goods: consequently the elaborate works of Pritchard, Carpenter, Lolly, and a host of others, are beyond their reach. I shall therefore seek to present to them a synopsis of their labors, not confining myself, however, strictly to the subject announced in the caption of this article, but bringing in so many of the collaterals as shall further the ends for which this journal is published, and in this manner throw light upon the science of which it is the exponent in America.

CHAPTER I.

The Physical Characteristics of Man which distinguish him from those Lower Animals which present the nearest approach to him in general Structure and Aspect.

THERE are not wanting many, even at the present day, who affect to believe that man was originally an ape, and that he learned from long experience to walk erect and to employ his hands for the purposes for which he now uses them.

It is true that there are many points of resemblance between this order of animals and man, but when we have collected all the distinctive peculiarities of man as distinguishing him from this class of Mammalia, we will find the difference to be greater between these two than that existing between any other two species which rank next to each other in the whole animal kingdom.

The first and most striking characteristic of man is his *erect attitude*.

For this he is fitted by the structure and peculiar arrangement of his whole osseous system, and in comparing him in this respect with the Orang and Chimpanzee, which of all other animals most nearly resemble him in structure and aspect, it will be necessary for us to present only the more general differences between the two, in order that we may, by avoiding scientific technicalities and minutiæ, arrive at a more satisfactory and comprehensible conclusion.

The heads of all animals are attached to the vertebral column or back bone, by articular surfaces called condyles. In man these condyles are so placed that a perpendicular, dropped from the centre of gravity of the head, would fall between them, and as they have a horizontal direction when the body is upright, the weight of the skull is laid vertically upon them, and there almost perfectly balanced. But as the posterior part of the head is entirely composed of solid matter, while the anterior part contains many cavities, the foramen magnum, (whose office it is to transmit the spinal cord as it issues from the skull, and whose position is directly between the condyles), is not placed in the centre of the base of the skull, but just behind it, thus compensating for the greater specific gravity of the posterior part of the head. There is, however, a little over compensation, by which the head is inclined to droop forward and downward when all the muscles are relaxed. This difficulty is obviated by the larger size and greater number of the muscles attached to the head posterior to the condyles, which are evidently intended to counteract this over compensation, and which enable us to preserve the head in equipoise for a whole day without fatigue.

In the Chinpanzee and Orang, however, we find this same foramen magnum situated in the middle of the posterior third of the base of the skull; and, as we descend the scale of mammalia, we find that it approaches nearer to the back of the skull, and at last comes out nearly in a line with its longest diameter, as we see in the horse.

"The obliquity of the condyles differs in a similar degree. In all mammalia except man, their plane is oblique, so that if the head were equally balanced upon them, the force of gravity would tend to carry it forwards and downwards. In man the angle which they make is very small; in the orang it is as much as 37°, and in the horse their plane is verticle, making the angle 90°." The conclusions to be deduced from these facts are the following:—If the horizontal were man's natural position, his head, instead of being nearly balanced as in the erect posture, would hang at the end of the neck, so that its whole weight would have to be supported by some external and constantly acting power. But for this, nature has made no adequate provision either in his osseous or muscular system. In other mammalia a strong, thick ligament, called the *ligamentum nuchæ*, or *ligament of the neck*, arising from the dorsal and cervical vertebræ, and inserted into the most prominent part of the occiput, maintains the head in this position; but of this there is scarcely any trace in man. "In the horizontal position, therefore, he would have the heaviest head, and the least power of supporting it."

It is unnecessary to prove that the erect position is unnatural to the highest order of apes, since the converse of the above and the following facts in regard to man are true of them. It is true they may be taught to assume and maintain it, but it is so foreign to their whole physical structure that it violates every law of that structure, and, if persisted in, produces serious constitutional disturbance, disease, and probably death.

Another result of the erect attitude of man is the position of the face immediately beneath the brain, so that its front is nearly on the same plane as the forehead. The muzzle of man has little if any projection; he is therefore unfitted for the horizontal position, since, in that position, he would be unable to seize his food from the ground without bringing his forehead and chin, as well as his mouth, in contact with it; he would be unable to perceive any other odors than those emanating from the ground or his own body, and he would have to make as painful an effort to examine with his eyes any object directly in front of him while on all fours, as he would now have to keep his eyes fixed upon the zenith. The reverse of all this is true in regard to the quadrumana, or four-handed animals. Their natural position is unquestionably that in which the body is thrown forward upon the anterior extremities. In this position the head is directed forward without an effort, and, from the peculiar manner in which the head is articulated with the spine, and from the obliquity of their condyles, they are enabled to assume the erect position without difficulty and to maintain it for a considerable length of time.

Another result of the erect attitude of man is the peculiarly curved arrangement of the vertebral column, its shape, its size, and its developments.

In considering the first of these vertebral characteristics we find that a perpendicular, dropped from the summit of the spine, would fall exactly on the centre of its base, though from its curve no such a result would at first be expected. Thus we find the head balanced upon a column so arranged that its curves shall diminish the effects of jars, jolts and concussions, at the same time that its centre of gravity shall be that of the head also.

From the consideration of the second vertebral peculiarity, we find the *shape* of the spinal column to be pyramidal, the apex supporting the head, and the base resting upon the centre bone of the pelvic arch, the sacrum. In considering, also, the *size*, (the third of the above-mentioned peculiarities), we find the base of this pyramid to be very broad, and to rest upon a broad foundation, thus giving strength and security to the whole superimposed weight.

In examining the *developments* of the vertebral column of all mammalia, we find an exact proportion existing between the bony processes and the muscles thereunto attached. As the head and trunk of man is so evenly balanced upon his pelvis, he has no occasion for strong muscles to be attached to his dorsal and cervical vertebræ; but, since his whole weight is to rest upon a narrow foundation, and there be balanced during violent action, strong muscles are necessary to perform these functions, and strong processes needed to give these muscles firm attachment, and we find both in the lumbar region of the vertebral column.

The reverse of all this is true of the Orang and Chimpanzee. In them the vertebral column is almost a straight line, its shape is much less pyramidal, its size more uniform throughout its whole length, and its developments far different from those of the human species. In other animals the more powerful muscles are situated above their loins, and consequently the processes of their dorsal and cervical vertebræ are more largely devel-

oped than their lumbar. A moment's reflection will show that this state of things can only exist in animals whose natural position is horizontal—whose vertebral columns are parallel with the surface of the earth.

The vertebral column of man rests upon a pelvis of greater proportional width than that of any other animal. The contents of the abdomen thus have a broad support; while the articulations of the thigh bones are thrown very far apart, so as to give a wide basis of support; and by the oblique direction of the whole pelvis, the weight of the body is transmitted almost vertically from the articulation of the back bone and the sacrum, to the upper part of the thigh bones.

The lower extremities of man have a greater proportionate length than those of any other of the mammalia, except the kangaroo tribe. It is therefore evident that if man's natural position was the horizontal, he would either be compelled to travel on his hands and knees, thus dragging his legs and feet behind him as useless burdens, or to elevate himself upon his toes, with his head down, and exert himself violently at every attempt to rotate his thighs in order to bring them forward. But nature never commits such blunders as these. That which she does she does well, and if we study her works closely we find that she has adapted all living beings for their particular elements, by a delicacy of structure and simplicity of mechanism which is altogether unrivalled in perfection by any of the works of man.

The thigh bones of the human species are of great length, and, by their obliquity, approximate each other quite closely at the knees, thus giving to man, in his upright position, a graceful and firm carriage, which he could not otherwise possess. The articular surfaces forming the knee-joint in man are very broad, and the whole weight of the body rests upon the expanded condyles of the tibia, or large bone of the leg; thence it is transmitted to the foot, whose bones, twenty-six in number, form an arch, upon the summit of which the whole weight of the body rests. This arched form of the foot, and the natural contact of the heel with the ground, are peculiar to man alone.

It is merely necessary to remark that the legs and feet of the Orang and Chimpanzee differ materially from those of man, and are so evidently intended for horizontal progression, for grasping and for climbing, that we wonder at their attainment of even a weak and imperfect carriage in the upright position.

"The other parts of the human body concerned in locomotion are exactly adapted to the peculiar construction of the skeleton. The tibia is kept erect upon the foot by very powerful muscles forming the calf of the leg—a prominence observed in no other animal in nearly the same degree. The extensors of the leg upon the thigh are much more powerful than the flexors, an arrangement seen in no other animal. The muscles by which the body is kept erect upon the thigh are of far greater size than is elsewhere seen. In the peculiar form of his trunk man differs from most other mammalia. His chest is large, flattened in front and expanded laterally; his breast bone is short and broad; the space between the lower ribs and the pelvis is very considerable; and the contents of the abdomen are almost entirely supported by the broad and expanded bones of the pelvic arch.

"From all these facts," and many more which our limits have compelled us to omit, "it is an indisputable conclusion that the erect attitude and biped progression alone are natural to man: and we must regard as in a great degree fabulous, all those histories of supposed wild men, who, it has been said, were found in woods, dumb, hairy, and crawling on all fours." On the other hand, a like investigation into the structure, nature and habits of the anthropoid, or man-like apes, "would prove that their movements are not easy or agile, unless they employ all their limbs for the support of their bodies;" and consequently it follows, that the horizontal is the only natural position for them to assume during progression.

But there is one peculiarity which is *the* characteristic of man alone, and that is, the possession of two hands, for he only is *two-handed*. "That," says Cuvier, "which constitutes the *hand*, properly so called, is the faculty of opposing the thumb to the other fingers, so as to seize the most minute objects,—a faculty which is carried to its highest degree of perfection in man, in whom the whole anterior extremity is free, and can be employed in prehension." "The faculty is chiefly dependent on the size and power of the thumb; which is more developed in man than it is even in the highest apes. The thumb of the human hand can be brought into exact opposition to the extremities of all the fingers, whether singly or in combination: whilst in those quadrumana (or four-handed animals) which most nearly approach to man, the thumb is so short and weak, and the fingers so long and slender, that their tips can scarcely be brought into opposition, and can never be opposed in near contact with each other with any degree of force. Hence, although admirably adapted for clinging around bodies of a certain size, such as the small branches of trees, &c., the extremities of the quadrumana can neither seize very minute objects with such precision, nor support large ones with such firmness, as are essential to the dexterous performance of operations for which the hand of man is admirably adapted. Hence the possession of *four hands* is not, as might be supposed, a character which raises the animals that exhibit it above two-handed man; for none of these four hands are adapted to the same variety of actions of prehension of which he is capable. There is much truth, then, in Sir Charles Bell's remark, that "we ought to define the hand as belonging exclusively to man. There is in him what we observe in none of the mammalia that approach him in other respects, a complete distinction in the functional character of the anterior and posterior extremities; the former being adapted for prehension alone, and the latter for support alone. Thus each function is performed with a much higher degree of perfection than it can be where two such opposite purposes have to be united. But it cannot be said with truth (as some have maintained) that man owes his superiority to his hand alone; for without the directing mind, the hand would be comparatively valueless. His elevated position is due to his mind and its instruments conjointly; for, if destitute of either, mankind would be speedily extinguished altogether, or reduced to a very subordinate grade of existence."

From the above facts and arguments we perceive that those who consider themselves as overgrown apes are, as far as physical characteristics are concerned, wrong in their premises, and have neither nature nor truth to substantiate their position. But if, after a careful perusal of the above, they still continue of the same mind, the conclusion is irresistible that, however much they may differ *physically* from their reputed forefathers, the apes, *mentally*, at least, they have made no advance since the creation, and may reasonably hope, in the course of time, to arrive at such a condition of mental apehood, as to be admitted by the apes themselves as one of their own number, whose ancestors accidentally or criminally strayed out of the good old paths of their more remote forefathers.

We have considered those physical characteristics which most obviously distinguish the order Bimana from the order Quadrumana; but there are still minuter, but not less important modifications and pecularities, which it may not be uninteresting to examine in a cursory manner.

Man is distinguished from all other tribes of living animals by the evenness and equality in length of his teeth, and by their close approximation in each jaw. Their position is also vertical—thus giving to the human face its most characteristic feature—the prominent chin. He has no occasion for a prominent muzzle, since he divides his food and raises it to his mouth by the agency of his hands. Unlike other animals, he is naturally destitute of weapons of offence or defence, and he cannot be regarded as their superior in muscular power, since he is inferior in swiftness or agility to animals of his own, or even inferior size. He is so slow of growth, that during his minority most other animals acquire their greatest degree of strength, gradually sink into decay, and finally die of old age. And the length of his life is proportioned to the length of his minortty, and is greater than that of all other mammalia. At birth he is the most helpless of all animals; and is utterly unable to seek his own food for many years after that event. He is inferior to most other animals in the acuteness of his special senses, but has the ability to educate and improve them, as well as his muscular strength also. He possesses the power of adaptation to varieties in external conditions, and is capable of sustaining the highest as well as the lowest extremes of temperature and of atmospheric pressure. His diet is naturally of a mixed kind, but he can support himself on either animal or vegetable food exclusively. He is further characterized by a brain of greater size and more complexity of structure than any other animal, and his superiority in intellect is exactly proportioned to this great size and complexity; for we find, that those animals which present these human characteristics in the greatest degree, also give indications of mind, so to speak, in the ratio of this degree.

Man has been enabled, by his superior reason, to overcome all apparent defects in his organization, and to subdue all other animals and reduce them to subjection unto himself. "His intellect can scarcely suggest the mechanism which his hands cannot frame; and he has devised and con-

structed arms more powerful than those which any other creature wields, and defences so secure as to defy the assaults of all but his fellow-men."

For more particular information in regard to the subjects treated in this chapter, the reader is referred to Dr. Carpenter's Principles of Human Physiology, division 12 of chapter 1st, on the "Characteristics of Man," from which the unascribed quotations above contained are taken.

CHAPTER II.

The Mental Characteristics of Man.

The mind has occupied itself upon its earthly tabernacle, the body, for ages after ages, and yet its knowledge of that body's structure, development, and essence is so imperfect, that when another thousand years shall have rolled six times away, its task will be incompleted—there will be mysteries which it cannot fathom, and unsolved questions which eternity and God alone can answer.

If this be true of the body, whose every property comes within the reach of our finite senses, how much more must it be true of the mind, whose presence sanctifies, ennobles, and preserves the body, and whose existence is known only by the mighty acts which it accomplishes!

From a comparison of the mind of man with that of the lower animals, we find his characterized by the possession of, 1st, Reason; 2d, Insatiable desires for knowledge and power; 3d, Articulate language; 4th, Moral sentiments; 5th, Belief in a Deity; and, 6th, Hope of immortality.

Instinct is common to both man and brute, but is found to be inversely proportioned to reason; hence we say that man is governed by reason and the brute by instinct. This leads us to a definition of the two terms.

Reason, the first attribute of the mind of man, may be defined to be the intentional adaptation of means to ends, with a knowledge or belief, on the part of the actor, that the means employed will produce the ends desired.

Abercrombie defines reason as "the exercise of mind, by which we compare facts with each other, and mental impressions with external things."—*Intellectual Philosophy*, sec. 10.

"An instinct," says Paley, "is a propensity prior to experience and independent of instruction."—*Nat. Theol.*, p. 170.

"By pure instincts are meant those which, independent of all instruction and experience, instantaneously produce certain actions when peculiar objects are presented to animals, or when they are influenced by peculiar feelings."—*Smellie's Phil. of Nat. Hist.*, p. 111.

From the above, we perceive that reason, in the highest sense of the term, is a faculty which, in man, is superadded to the instincts, and, *to a limited extent*, governs and controls them. We say, "to a limited extent," for man, in common with other animals, is swayed by instincts which do not acknowledge the supremacy of reason. We may therefore safely infer, "that the reasoning powers of man differ rather in degree than in kind from those of the inferior animals."

The second mental characteristic of man we have laid down as "An insatiable desire for knowledge and power." It is this desire, "peculiar to him alone, which urges him to attempt and persevere, through long successive ages, in the effort to obtain a conquest over the physical agencies of the elements, and to render the properties of surrounding bodies subservient to his uses and wants. While the lower tribes of animals are sports of destiny and of external condition, and make no efforts to rise in the scale, man, on the other hand, gains victories over the elements, and turns their most powerful and formidable agencies to the promotion of his own pleasures and advantages. Hence it comes to pass that man is a cosmopolite; that while each tribe among the wild inhabitants of the forest can exist in only a comparatively small tract of the earth's surface, man, with those creatures which he has chosen for his companions from time immemorial, and has with him in his wanderings, is capable of living under every clime, from the pole to the equator."—*Ward's Nat. Hist. of Man.*

When the sensual desires of the brute are pacified, and he is unthreatened by danger, he commonly falls asleep, or at least remains at rest. "But such is not true of man—at least of civilized man. With his appetites satisfied—with ample provision for every physical necessity, and exempt from even the remotest apprehension of harm—still, actuated by a class of wants above those of his mere animal nature, does he remain awake,—observing the objects and phenomena around him, reflecting, perhaps, on his own mysterious nature—its complicated relations—its inscrutable destiny. Or, unsatisfied with the present, is stretching his view far into the dim and misty future, and judging, or trying to judge, of its fast coming events. Nor yet can his expanding mind be bounded by the world in which he dwells, but grasps at the universe and eternity, and space and time are too limited to contain it.

"This curiosity, this insatiable appetite for knowledge, or the discovery of new truths, seems an attribute especially of our own nature, and is the stimulus ever urging us forward in the path of intellectual advancement. Scarce has the infant become familiar with the light of heaven; hardly does expression begin to brighten its vacant eye, ere it evinces its incipient curiosity in touching, tasting, smelling, hearkening—and is thus treasuring up ideas of sensation, which are afterwards to be compared, abstracted, combined, or, in other words, to be worked up into various new forms, constituting new and inexhaustible sources of mental progress."—*Sweetzer's Mental Hygiene*, 2d ed., pp. 38, 39.

Associated with this insatiable desire for advancement in knowledge and power, is a capability of improvement which, we have reason to believe, is as unlimited as this desire is insatiable. "To this do we owe all the arts, refinements, and comforts of modern life. Intellect is indeed power: no bounds can be fixed to it. The laws of nature, the force of the elements, the swift lightning—are all turned and rendered subservient to its mighty purposes."—*Op. Cit.*, p. 43.

"One of the most important aids to the use and development of the human mind is the power of producing articulate sounds or language, of which, as far as we know, man is the only animal in possession. There is no doubt that many other species have certain powers of communication between individuals, but they are probably very limited, and of a kind very different from a verbal language."—*Carpenter's Phys.*, sec. 60.

It is perfectly obvious to the reflecting mind, that the language of reason must be more extensive than that of instinct, and more complicated and comprehensive as reason is superior to instinct; and, further, as man is swayed by both, his language must be doubly intelligible and doubly intricate. Weeping and laughter may be regarded as a part of the language of instinct, since at times no power of reason can control them, and they, as expressive of certain mental conditions, appear to be peculiar to man alone.

Closely allied to spoken language, and the result of it, and a high endowment of intellect, do we find written language, which is so peculiarly a production of human reason, as to be often cited as a distinctive evidence of its superiority to brute instinct.

But there remain other characterists of the human mind, which, in one view of the subject, are as superior to reason as reason is superior to instinct. We refer, in the fourth place, to the moral sentiments, which sanctify and ennoble the workings of intellect, and open to it a vast field of knowledge and power which is wholly unknown to minds of an inferior grade.

And, closely allied with the moral sentiments, do we find, 5th, a belief in a Deity, and 6th, a hope of immortality, as so peculiarly characteristic of man, as to have won for him the title of "The only religious animal."

On the 5th of these characteristic attributes of man says Carpenter (op. cit. § 61):—"This may take various forms, but is never entirely absent from any race or nation, although (like other innate tendencies) it may be wanting in individuals. Attempts have been made by travellers to prove that particular nations are destitute of it; but such assertions have been based only upon a limited acquaintance with their habits of thought, and with their outward observances. For there are probably none that do not possess the idea of some invisible power external to themselves; whose favor they seek, and whose anger they deprecate by sacrifice and other religious observances. Closely connected with this belief in an unseen existence, is the hope of immortality, which has been implanted by the Creator in the mind of man; and which, developed as it is by the mental cultivation that is almost necessary for the formation of the idea, has been regarded by the philosophers in all ages as one of the chief *natural* arguments for the immortality of the soul. By this Immortal Soul, the existence of which is thus guessed by man, but of whose presence within him he derives the strongest assurance from Revelation, man is connected with beings of a higher order, among whom intelligence exists, unrestrained in its exercise by the imperfections of that corporeal mechanism through which it here operates; and to this state,—a state of more intimate communion of mind with mind, and of creatures with their Creator,—he is encouraged to aspire, as the reward of his improvement of the talents here committed to his charge."—*Carpenter, op. cit.* § 61.

Many of my readers may be ready to inquire, why I have not considered the possession of a soul as the first and most important characteristic of man; and to them I can make no better answer

than to cite the following from Pritchard's Natural History of Man:—

"By some it may be said that man is distinguished from the lower tribes by the possession of an immaterial soul, a principle capable of conscious feeling, of intellect and thought. To many it may appear a paradox to ascribe a soul to the inferior tribes of creation, yet it is difficult to discover a valid argument limiting its possession to man. The phenomena of feeling, of desire and aversion, of love and hatred, of fear and revenge, and the perception of external relations as manifested in the life of the brute, imply, not only through the analogy which they display to the human faculties, but likewise from all that we can learn or conjecture of their particular nature, the superadded existence of a principle distinct from the mere mechanism of material bodies. That such a principle must exist in all beings capable of sensation, or of anything analogous to human passions or feelings, will hardly be denied by those who perceive the force of arguments which metaphysically demonstrate the immaterial nature of the mind. Though we may doubt that beasts have imperishable souls like men, we may venture to conjecture that there may be immaterial essences of divers kinds, and endowed with various attributes and capabilities."—*Pritchard, op. cit.* p. 2.

There are many who, from the consideration of the mere physical characteristics of man, might conclude that, since "he is a being composed of the same materials and framed on the same principles as the creatures he has trained for his service, and slays for food,"—since "the points of resemblance are innumerable, and extend into the arrangements of that mechanism which maintains the physical life of the body, admits of its decay, brings forward its development and prepares a succession of similar beings to perpetuate the race,"—the savage was man's only natural and happy condition. They contend, further, that, in the early days of his creation, he inhabited a warm and genial climate, abounding in all the productions necessary for his support and preservation, that he lived solitary, naked and savage, roamed without care or thought over the face of the earth which he held in common with the brute, and fed at will on the roots and fruits which the teeming soil spontaneously brought forth. "Then, say they, he was pure and innocent, exempt from all those multiform and painful maladies which now afflict and shorten his career; his life glided on in a smooth and happy current, and when death at last overtook him, it came, not as at present, fraught with pains and terrors, but like the tranquil sleep which steals over the wearied senses of innocent childhood. Here, free from all those lights and shadows of the soul which spring from cultivated intellect, like the brutes, he was happy in the bare consciousness of existence—in exercising his limbs—in basking in the sunshine, or cooling himself in the shade,—and in the gratification of his mere animal propensities."—*Sweetser, op. cit.* pp. 41-2.

But those, on the other hand, who have not only studied the physical characteristics of man by themselves, but also considered their relations to his mental characteristics, perceive that, though man may be corporeally a brute, yet intellectually he is almost a god. Perceiving the intimate connection between mind and body, they have studied into the functions of each separate organ of the latter, knowing that, as mind itself is immaterial, our only means of studying its nature and essence with success, is to inform ourselves correctly on all subjects connected with its material organs. They have studied into the structure and functions of every organ in the human mechanism, and, by the assistance of comparative anatomy, have, with two or three minor exceptions, ascertained the exquisite adaptation of each separate part to the performance of its particular function. And that which is true of other portions of the body is equally true of the brain. "To many who have studied the functions of its different parts, there appears the same admirable adaptation of THEM to the external world, and to the order of Providence embodied in the constitution of that world, as is recognized in the case of the other organs previously considered. We discover organs and faculties of observation directly related to the qualities of external objects and beings; organs and faculties relating to their phenomena; organs and faculties relating to their agencies, and the consequences which they produce; and organs and faculties relating to man as an individual, and as a social, a moral, and a religious being. On contemplating these endowments and relations, and the order of God's providence administered through them, the intelligent mind thrills with vivid emotions of love, gratitude, and admiration for their Great Author. A 'present Deity' is felt to be no longer a figure of speech, or a flight of poetry, but a positive and operating reality. We not only feel that 'we live, and move, and have our being' in God, but become acquainted with the means through which his power, wisdom and goodness affect us, and discover that we are invited, as his moral and intelligent creatures, to co-operate in the fulfilment of his designs. The beautiful exclamations of King David, 'If I climb up into heaven, Thou art there; if I go down to hell, Thou art there also; if I take the wings of the morning and remain in the uttermost parts of the sea, even there shall Thy hand lead me, and Thy right hand shall hold me,' become positive, scientific truths; and man takes his true station as the interpreter and administrator of nature under the guidance of nature's God."—*Combe on Secular Education.* (*Moral and Intellectual Science*), p. 370.

Such investigations show us the relative value of our two natures—show us that the body is but the temporary abiding-place of the soul—the reception-room through which that soul must pass before it can be ushered into the presence of its great Creator. Then let us away with the specious sophistry that would elevate the body and deprave the soul, by making man, who was created "a little lower than the angels," a very brute indeed. Let us study the influence of the body upon the mind, ascertain the mutual relations existing beneath the two, learn the common laws which affect them both, and then so use our knowledge that the whole strength and energy of the one shall be devoted to the perfecting and ennobling the other. Then shall we learn that

"It is not all of life to live,
Nor all of death to die."

"Intellect is indeed power—no bounds can be affixed to it." And when we consider what that intellect has done and what it is still continuing to do, we may reasonably expect that a power so vast, so boundless, so sublime, is yet in the infancy of its vastness, its immensity, its sublimity. Its future is so dazzlingly glorious that, like the sun, none but the eagle-like in spirit can gaze upon it unblinded an unappalled.

No! Ignorance is *not* bliss, and it *cannot* be folly to be wise!!

Mechanical Department.

MANUFACTURE OF GLASS:

ITS HISTORY AND MYSTERY.

NUMBER TWO.

THE elasticity and fragility of glass are amongst its most extraordinary phenomena. Its elasticity exceeds that of almost all other bodies. If two glass balls are made to strike each other at a given force, they recoil, by virtue of their elasticity, will be nearly equal to the original impetus. Connected with its brittleness are some very singular facts. Take a hollow sphere, with a hole, and stop the hole with your finger, so as to prevent the external and internal air from communicating, and the sphere will fly to pieces by the mere heat of the hand. Vessels made of glass that has been suddenly cooled possess the curious property of being able to resist hard blows given to them from without, but will be instantly shivered by a small particle of flint dropped into their cavities. This property seems to depnd upon the comparative thickness of the bottom. The thicker the bottom is, the more certainty of breakage by this experiment. Some of these vessels, it is stated, have resisted the strokes of a mallet, given with sufficient force to drive a nail into wood; and heavy bodies, such as musket balls, pieces of iron, bits of wood, jasper, bone, &c., have been cast into them from a height of two or three feet without any effect; yet a fragment of flint, not larger than a pea, let fall from the fingers at a height of only three inches, has made them fly. Nor is it the least wonderful of these phenomena that the glass does not always break at the instant of collision, as might be supposed. A bit of flint, literally the size of a grain, has been dropped into several glasses successively, and none of them broke; but, being set apart and watched, it was found that they all flew in less than three quarters of an hour. This singular agency is not confined to flint. The same effect will be produced by diamond, sapphire, porcelain, highly-tempered steel, pearls, and the marbles that boys play with.

Several theories have been hazarded in explanation of the mystery; but none of them are satisfactory. Euler attempted to account for it on the principle of percussion; but if it were produced by percussion the fracture would necessarily be instantaneous. The best solution that can be offered, although it is by no means free from difficulties, refers the cause of the disruption to electricity. There is no doubt that glass, which has been suddenly cooled, is more electric than glass that has been carefully annealed—a process which we will presently explain; and such glass has been known to crack and shiver from a change of temperament, or from the slightest scratch. The reason is obvious enough. When glass is suddenly cooled

from the hands of the artificer, the particles on the outer side are rapidly contracted, while those on the inner side, not being equally exposed to the influence of the atmosphere, yet remain in a state of expansion. The consequence is that the two portions are established on conflicting relations with each other, and a strain is kept up between them which would not exist if the whole mass had undergone a gradual and equal contraction, so that when a force is applied which sets in motion the electric fluid glass is known to contain, the motion goes on propagating itself till it accumulates a power which the irregular cohesion of the particles is too weak to resist. This action of the electric fluid will be better understood from an experiment which was exhibited before the Royal Society upon glass vessels with very thick bottoms, which, being slightly rubbed with the finger, broke after an interval of half an hour. The action of the electric fluid in this instance is sufficiently clear; but why the contact with fragments of certain bodies should produce the same result, or why that result is not produced by contact with other bodies of even greater size and specific gravity, is by no means obvious.

Amongst the strangest phenomena observed in glass are those which are peculiar to tubes. A glass tube placed in a horizontal position before a fire, with its extremities supported, will acquire a rotary motion round its axis, moving at the same time towards the fire, notwithstanding that the supports on which it rests may form an inclined plane the contrary way. If it be placed on a glass plane—such as a piece of window glass—it will move from the fire, although the plane may incline in an opposite direction. If it be placed standing nearly upright, leaning to the right hand, it will move from east to west; if leaning to the left hand, it will move from west to east; and if it be placed perfectly upright, it will not move at all. The causes of these phenomena are unknown, although there has been no lack of hypotheses in explanation of them.*

It is not surprising that marvels and paradoxes should be related of glass, considering the almost incredible properties it really possesses. Seeing that it emits musical sounds when water is placed in it, and it is gently rubbed on the edges; that these sounds can be regulated according to the quantity of water, and that the water itself leaps, frisks, and dances, as if it were inspired by the music; seeing its extraordinary power of condensing vapor, which may be tested by simply breathing upon it; and knowing that, slight and frail as it is, it expands less under the influence of heat than metallic substances, while its expansions are always equable and proportioned to the heat, a quality not found in any other substance, we cannot be much astonished at any wonders which are superstitiously or ignorantly attributed to it, or expected to be elicited from it. One of the most remarkable is the feat ascribed to Archimedes, who is said to have set fire to the Roman fleet at the siege of Syracuse by the help of burning glasses. The fact is attested by most respectable authorities, [Diodorus Siculus, Tzetzes, Galen, Lucian, Anthemius, and others] but it is only right to add that it is treated as pure fable Kepler and Descartes, than whom no men were more competent to judge of the possibility of such an achievement. Tzetzes relates the matter very circumstantially; he says that Archimedes set fire to Marcellus's navy by means of a burning glass composed of small square mirrors, moving every way upon hinges; which, when placed in the sun's rays, directed them upon the Roman fleet so as to reduce it to ashes at the distance of a bow-shot. Kircher made an experiment founded upon this minute description, by which he satisfied himself of the practicability of at least obtaining an extraordinary condensed power of this kind. Having collected the sun's rays into a focus, by a number of plain mirrors, he went on increasing the number of mirrors until at last he produced an intense degree of solar heat; but it does not appear whether he was able to employ it effectively as a destructive agent at a long reach. Buffon gave a more satisfactory demonstration to the world of the capability of these little mirrors to do mischief on a small scale. By the aid of his famous burning-glass, which consisted of one hundred and sixty-eight little plain mirrors, he produced so great a heat as to set wood on fire at a distance of two hundred and nine feet, and to melt lead at a distance of one hundred and twenty, and silver at fifty; but there is a wide disparity between the longest of these distances and the length of a bowshot, so that the Archimedean feat still remains a matter of scientific speculation.

In the region of glass, we have a puzzle as confounding as the philosopher's stone (which, oddly enough, is the name given to that color in glass which is known as Venetian brown sprinkled with gold spangles), the elixar v it, or the squaring of the circle, and which has occasioned quite as much waste of hopeless ingenuity. Aristotle, one of the wisest of men, is said, we know not on what authority, to have originated this vitreous perplexity by asking the question, "Why is not glass malleable?" The answer to the question would seem to be easy enough, since the quality of malleability is so opposed to the quality of vitrification, that, in the present state of our knowledge (to say nothing about the state of knowledge in the time of Aristotle) their co-existence would appear to be impossible. But, looking at the progress of science in these latter days, it would be presumptuous to assume that anything is impossible. Until, however, some new law of nature, or some hitherto unknown quality shall have been discovered by which antagonist forces can be exhibited in combination, the solution of this problem may be regarded as at least in the last degree improbable.

Yet, in spite of its apparent irreconcilability with all known laws, individuals have been known to devote themselves assiduously to its attainment, and on more than one occasion to declare that they had actually succeeded, although the world has never been made the wiser by the disclosure of the secret. A man who is possessed with one idea, and who works at it incessantly, generally ends by believing against the evidence of facts. It is in the nature of a strong faith to endure discouragement and defeat with an air of martyrdom, as if every fresh failure was a sort of suffering for truth's sake. And the faith in the malleability of glass has had its martyrology as well as faith in graver things. So far back as the time of Tiberius, a certain artificer, who is represented to have been an architect by profession, believing that he had succeeded in making vessels of glass as strong and ductile as gold or silver, presented himself with his discovery before the Emperor, naturally expecting to be rewarded for his skill. He carried a handsome vase with him, which was so much admired by Tiberius that, in a fit of enthusiasm, he dashed it upon the ground with great force to prove its solidity, and finding, upon taking it up again, that it had been indented by the blow, he immediately repaired it with a hammer. The Emperor, much struck with so curious an exhibition, inquired whether anybody else was acquainted with the discovery, and being assured that the man had strictly preserved his secret, the tyrant instantly ordered him to be beheaded, from an apprehension that if this new production should go forth to the world it would lower the value of the precious metals.*

The secret, consequently, perished. A chance, however, arose for its recovery during the reign of Louis XIII., a period that might be considered more favorable to such undertakings; but unfortunately with no better result. The inventor on this occasion submitted a bust formed of malleable glass to Cardinal Richelieu, who, instead of rewarding him for his ingenuity, sentenced him to perpetual imprisonment, on the plea that the invention interfered with the vested interests of the French glass manufacturers.† We should have more reliance on these anecdotes of the martyrs of glass if they had bequeathed to mankind some clue to the secret that is supposed to have gone to the grave with them. To die for a truth, and at the same time to conceal it, is not the usual course of heroic enthusiasts.

Many attempts have been made to produce a material resembling glass that should possess the quality of malleability, and respectable evidence is not wanting of authorities who believed in its possibility, and who are said to have gone very near to its accomplishment. An Arabian writer‡ tells us that malleable glass was known to the Egyptians; but we must come closer to our own times for more explicit and satisfactory testimony. Descartes thought it was possible to impart malleability to glass, and Boyle is reported to have held the same opinion. But these are only speculative notions, of no further value than to justify the prosecution of experiments. Borrichius, a Danish physician of the seventeenth century, details an experiment by which he obtained a malleable salt, which led him to conclude that as glass is for the most part only a mixture of salt and sand, he saw no reason why it should not be rendered pliant. The defect of his logic is obvious; but, setting that aside, the fallacy is practically demonstrated by his inability to get beyond the salt. Borrichius also thought that the Roman

* The most plausible reason assigned is that of the expansion of the tube towards the fire by the influence of the heat. The fallacy of this theory is at once shown by the fact that, although heat does expand bodies, it does not increase their weight; therefore, notwithstanding that one side of the tube may be expanded, its equilibrium will remain unimpaired.

* This story is attested, with slight variations, by several writers—Petronius, Dion Cassius, Pliny, and Isidorus. Pliny says that the populace, imagining that their interests would be injured by the discovery, destroyed the workhouse, tools, and dwelling of the artificer.

† Blancourt. ‡ Ibn Abd Alhakim.

who made the vase for Tiberius may have successfully used antimony as his principal ingredient. Such suppositions, however, are idle in experimental science which furnishes you at once with the means of putting their truth or falsehood to the test. There is a substance known to modern chemistry, *luna cornea*, a solution of silver, which resembles horn or glass, is transparent, easily put into fusion, and is capable of bearing the hammer. Kunkel thought it was possible to produce a composition with a glassy exterior that should possess the ductile quality; but neither of these helps us towards an answer to Aristotle's question. Upon a review of the whole problem, and of everything that has been said and done in the way of experiment and conjecture, we are afraid we must leave it where we found it. The malleability of glass is still a secret.

Dismissing history and theory, we will now step into the Glass House itself where the practical work of converting sand into goblets, vases, mirrors and window-panes is going forward with a celerity and accuracy of hand and head that cannot fail to excite wonder and admiration. As the whole agency employed is that of heat, the interior of the manufactory consists of furnaces specially constructed for the progressive processes to which the material is subjected before it is sent out perfected for use. Look round this extensive area, where you see numbers of men in their shirt sleeves, with aprons before them, and various implements in their hands, which they exercise with extraordinary rapidity, and you will soon understand how the glittering wonders of glass are produced. Of these furnaces there are three kinds, the first called the calcar, the second the working furnace, and the third the annealing oven, or *lier*.

The calcar, built in the form of an oven, is used for the calcination of the materials preliminary to their fusion and vitrification. This process is of the utmost importance:—it expels all moisture and carbonic acid gas, the presence of which would hazard the destruction of the glass pots in the subsequent stages of manufacture, while it effects a chemical union between the salt, sand and metallic oxides, which is to prevent the alkali from fusing and volatilizing, and to ensure the vitrification of the sand in the heat of the working furnace to which the whole of the materials are to be afterwards submitted.

The working furnace, which is round and generally built in the proportion of three yards in diameter to two in height, is divided into three parts, each of which is vaulted. The lower part, made in the form of a crown, contains the fire, which is never put out. Ranged round the circumference inside are the glass-pots or crucibles, in which the *frit*, or calcined *materiel*, is placed to be melted; and from several holes in the arch of the crown below issues a constant flame which, enveloping the crucibles, accomplishes the process of melting. Round the exterior of the furnace you perceive a series of holes or mouths; these are called *boccas* from the Italian, and it is through them the *frit* is served into the crucibles and taken out when melted. The volume of heat is here so intense, that the *boccas* are provided with movable collars or covers, generally composed of lute and brick, to screen the eyes of the workmen, who stand outside in recesses formed for the purpose in the projections of the masonry. The severest part of the work arises when any of the pots, or crucibles, happen to become cracked or worn out, in which case the *bocca* must be entirely uncovered, the defective pot taken out with iron hooks and forks, and a new one substituted in its place through the flames by the hands of the workman. In order to enable him thus literally to work in the fire, he is protected by a garment made of skins in the shape of a pantaloon, and heavily saturated with water. This strange garment completely covers him from head to foot, all except his eyes, which are defended by glasses.

The material being now melted, is fashioned into the desired forms by the hands of the workmen while it is yet hot, and then placed to cool gradually in the third furnace, or annealing oven, called the *lier*. This oven is a long, low chamber heated at one end, and furnished with movable iron trays or pans, called *fraiches*, from the French, upon which the various articles are set down, and finally removed, when they are sufficiently cold, through an opening which communicates with the *sarosel*, or room where the finished articles are kept.

The intensity of the fire requires that the furnaces and crucibles should be constructed of materials the least fusible in their nature, and the best calculated to resist the violent and incessant action of heat; or the manufacturer will incur the most serious losses and delays from casualties which, even after the most careful and costly outlay, cannot be always averted. The crucibles especially demand attention in this respect, in consequence of the solvent property of some of the materials which are melted in them. These crucibles are deep pots, varying in size according to the extent or objects of the manufacture; and some notion may be formed of the importance attached to them from the fact that they are not unfrequently made large enough to contain individually no less than a ton weight of glass.

Great skill and care are requisite in their structure so as to adapt them to the temperature in which their qualities are to be tested; and even with the utmost attention that can be bestowed upon them they are often found to break soon after they are exposed to the furnace, by which heavy losses are entailed upon the manufacturer. Nor is this the only point which must be considered. The size of the crucible should bear a proportionate relation to that of the furnace, or one of two consequences, equally to be avoided, will ensue: either that there will be a waste of fuel if the crucibles are too small, or an inadequate heat, if they are too large.

The initial movement of the glass-blower is to dip a hollow iron rod or tube, about five feet long, through the *bocca*, into one of the crucibles containing the melted glass. Having collected at the end of the tube a sufficient quantity of material for the article he is about to fashion—a drinking glass, finger glass, jug, or whatever it may be (which requires, perhaps, two or three dips, according to the quantity he wants), he withdraws the tube and holds it perpendicularly for a few seconds with the heated mass downwards, till the fluid drops and lengthens by its own momentum beyond the end of the tube. He then quickly raises it, and rolls it on a smooth horizontal plate till it acquires a cylindrical form. When he has got it into this shape, he applies his mouth to the opposite end of the tube, and blows it into the heated mass, which swiftly becomes distended into a sphere. But as the globe thus obtained is not rendered sufficiently thin for his purpose by a single blowing, he reheats it by holding it within the furnace, and then blows again, repeating the operation till he brings it to the desiderated size and consistency. Thus prepared, he swings it in the air like a pendulum, or twirls it round and round rapidly, according to the elongated or circular form he requires, the molten particles obeying the tendency of the force and motion employed.

Having advanced to this stage, and the mass being ready for fashioning, new instrument is brought to bear upon it. This is a small solid round iron rod, called the pontil, upon one end of which a lesser portion of material is collected by another workman, and this portion being applied to the extremity of the globe already formed rapidly adheres to it. The whole is now detached from the tube, or blow-pipe, by simply damping the point of contact which causes the glass to crack, so that a stroke upon the tube separates it safely, leaving a small hole in the globe where the tube had originally entered.

By this time the temperature of the mass has cooled down, and it becomes necessary to reheat it, which is done as before. The artificer next seats himself on a stool with elevated arms, upon which he rests the pontil, which he grasps and twirls with his left hand, having thus a command over the red-hot glass with his right hand, in which he holds a small iron instrument called a procello, consisting of two blades with an elastic bow, similar to a sugar tongs. With this little instrument the whole work of fashioning is performed, and as it must be completed while the glass is yet ductile, having always, however, the power of re-heating it when necessary, the process is effected with wondrous celerity. By the aid of the procello he enlarges or contracts the mass, which he adapts to its motions with his left hand, and where any shapeless excrescences appear, he instantly cuts them off with a pair of scissors, as easily as if they were so much lace or cotton. And thus, almost in less time than it has occupied us in the description, articles of the most exquisite form and delicacy are created by the art-magic of those Vulcans of the glass-furnace.

That which chiefly excites astonishment and admiration in the spectator is the ease and security with which a material so fragile is cut, joined, twirled, pressed out, and contracted, by the hands of the workman. Long practice alone can ensure the requisite certainty and quickness of manipulation, and the eye must be highly educated to its work before it can achieve off-hand, and, by a sort of accomplished instinct, the beautiful shapes which are thus rapidly produced.

The moment the article is finished, it is detached from the pontil and dropped into a bed of ashes, from whence it is removed while it is yet hot, by a pronged stick or wooden shovel, to the tray, to be deposited in the annealing oven, where it is gradually cooled.

In making crown-glass, which is used for windows, a slight alteration in the process is observed.

When the globe is prepared as before at the end of the tube, it is flattened at its extremity by pressure against a plain surface—the new material at the end of the pontil is then attached to the flattened side, and the whole mass detached from the tube, leaving a circular hole at the point of separation. The mass is now twirled round and round, at first slowly, then more quickly, till its diameter, obeying the centrifugal force, becomes wider and wider, the whole expanding in proportion. At last, as the motion increases in velocity, the doubled portion suddenly bursts open, the whole forming a plain disk of uniform density throughout, except at the spot in the centre where the pontil is attached to it, and where there is accumulated that small lump which is vulgarly called a *bull's eye*. The most surprising incident in this process is the bursting open of the flattened globe, a circumstance which would shiver the entire mass if it were not kept up at a certain heat.

Events of the Month.

DOMESTIC.

The principal topic of interest in the Congressional proceedings during the past month, has been the discussion in the Senate, of a set of resolutions offered by Gen. Cass, reaffirming the Monroe doctrine, on the question of European occupancy of American soil. In this debate, the principal speakers have been Messrs. Cass, Hale, Soule, Seward, Mason and Clemens. Senator Rusk, as Chairman of the Special Committee on the Emigrant Route to the Pacific, has brought in a bill authorizing the President to cause to be constructed a railroad from the Valley of the Mississippi to the Pacific, from such points as he may designate. The bill grants the right of way 300 feet through the public lands, and appropriates alternate sections of land for its construction—6 miles on each side of the road through the States, and 12 miles through the Territories, and $20,000,000 to be raised on 5 per cent. bonds, payable in 50 years. The subject was debated with great interest, a majority of the speakers favoring the construction of a railroad to the Pacific, though opposed to this bill as putting too much power into the hands of the President. The discussion is not yet completed.

The Legislature of New Jersey met on the 12th of January. The Message of Gov. Fort gives a favorable view of the general prosperity of the State. Among the improvements in legislation within the last two years, he notices the establishment of the district system for the election of members of the Legislature, the Homestead exemption to the amount of $1,000, and the acts in relation to Insurance and Plank Roads. He recommends the enactment of measures for increasing the benefits of the Free School System, and the improvement of education in general. The Message also contains a review of the Banking operations of New Jersey, and suggests various measures to protect the community from monetary fluctuations and bankruptcies.

The Governor recommends to the Legislature the assertion of essential, just and well-founded views of international policy, and that the attention of our co-States be invited to a renewed consideration of the subject.

The Legislature of Michigan assembled at Lansing, on the 5th of January. In the message of Governor McClelland, the affairs of the State are discussed at length and with much ability. The financial condition of the State is in a most flourishing condition, and with economy and judicious government. Gov. McC. trusts that in a few years the public debt of Michigan will be liquidated and the people be relieved entirely from State taxation.

Solitary confinement has been substituted in place of capital punishment, and Gov. McC. desires to see the principle carried out and fully tested. To this end, he concurs with the Prison Inspectors in recommending the construction of suitable cells.

The educational system of the State, it is thought, is sufficient to carry into effect the provisions of the Constitution. A Normal School has been established at Ypsilanti, which has been placed under the charge of an able and competent Superintendent. The building for the school having been finished, was dedicated with appropriate ceremonies, and a Teachers' Institute established on the 5th of October last. Two hundred and fifty teachers enrolled their names as members of the institute, which was held for three subsequent weeks. More than one hundred lectures, familiar or written, were delivered before the institute on subjects connected with the teacher's vocation. The plan pursued was unanimously approved by the teachers. It has been decided by the Board of Education, that the school shall be opened in April next, for those who may wish to prepare themselves to take charge of the primary and union schools, and a thorough English and scientific course for all pupils.

The Constitution required the election by the people of Regents of the State University at Ann Arbor, the reduction of their number, and a reconstruction and reorganization of the Board, making the President of the University their presiding officer. This requirement has been fulfilled, and it is believed the change will prove advantageous. The academic department has also been reorganized, and at the present time consists of a President and six Professors. There are now sixty students in the under graduate class. The Library is small and deficient. The medical department is flourishing, and it numbers one hundred and sixty students. The University labors under financial difficulties which should be relieved.

The message of Gov. Wright, of Indiana, takes strong ground in favor of the multiplication and improvement of Common Schools.

"We must," says he, "have a general, uniform and universal Common School system. We must make education free to every child in the State. We must, by wise legislation, provide such facilities for thorough yet free instruction in our public schools as to render unnecessary and ultimately to break down those select schools in which classes of society are educated. We must place the children of every class of society upon the same level, using the same books, having the same system of instruction, and enjoying the same facilities for acquiring the first rudiments of thought, knowledge and information. We cannot preserve our free institutions short of a universal system of education. We must, in the language of our new Constitution, encourage by all suitable means moral, intellectual, scientific and agricultural improvement, and provide by law a general system of Common Schools, wherein tuition shall be without charge, and equally free to all."

Gov. Wright is decidedly for the plan of colonizing our free negroes in Africa, and says:

"In pursuance of an act of last session, a correspondence has been opened with President Roberts, of Liberia, on the subject of acquiring territory for the settlement of the free blacks who may desire to emigrate from Indiana. Sufficient time has not elapsed to receive an answer, but a favorable one is expected. No perfect organization of the State Board has yet been made under the law, as it is not yet in force.

It is gratifying to know that Indiana is the first State in the Union that has authorized a State organization for the purposes of colonization, and in that capacity has opened a correspondence with that Republic, and thereby recognized it as one of the independent nations of the earth. While the principal nations of Europe have recognized the independence of Liberia, it is a matter of astonishment that, up to the present time, our Government, that should have been the first to welcome her into the family of nations, has remained silent.

Whatever opinions may be entertained by others, it is my firm conviction that the cause of African colonization is the only hope that promises anything substantial for the colored man. It is the only door open for the regeneration of his race. It is here alone that the black man must look for the freedom and independence of his people.

The question of Temperance is touched upon, and as the present laws of Indiana have not proved successful, he suggests that drunkenness be made an offence punishable by law, a disqualification for the making of contracts, or the management of property. By that means the vice might be rendered more odious, and the examples set, by those addicted to it, less pernicious in the community, while the drunkard would be prevented from dissipating his property and leaving his family destitute—thereby defeating the designs of the cunning and cruel."

The Message of Gov. Farwell, of Wisconsin, states that during the past year, there has been much to be thankful for: the population has greatly increased, the health of the people has been good, as demonstrated by the returns of the last general census. The large area of territory also offers superior inducements to the agriculturist, and will make Wisconsin eventually one of the richest States in the Union, in the productions of the soil. The Western portion of the State contains exhaustless beds of mineral, as is sufficiently attested by successful experiments already made, and the report of Hon. David D. Owen, U. S. Geologist.

From California.—Accounts from California to Jan. 15, state that the winter so far had been the most severe experienced since the settlement of the country by Americans. Snow or rain had been incessant for the last two weeks. The waters were very high, and communication with the mining counties cut off, in consequence of which, there was great scarcity and suffering, some of the miners subsisting on acorns. In portions of Yuba and Sierra counties the snow was already ten feet deep and still falling, and the miners actually reduced to absolute want. In some places cabins are entirely covered with snow, and the roofs of many have been crushed in, thus cutting off the last chance of protection. The land commissioners had decided in favor of Col. Fremont's claim, which covers ten square leagues in Mariposa county, including the county seat, many ranches, and a large tract of mineral lands, now being worked. It is thought he will find it difficult to get possession.

An Experiment.—The Chicago Tribune discourses a profound question in Science. Hear it: Not many days ago a very interesting experiment was tried in this city to ascertain the amount of oxygen necessary to support life. Six hundred persons were placed in a hall in one of the hotels, all the doors and windows were closed, and the experiment began. During the first half hour nothing special was observed, except an universal drowsiness, which was warded off as long as possible by an ingenious device of the experimenter, in the shape of an eloquent lecture. During the second half hour several sank into a deep sleep, from which it was impossible to rouse them, and a few fainted. At the end of the third half hour it was deemed unsafe to continue the experiment longer, and the fact was considered and established, that, under those circumstances, life would not become extinct within the space of 95 minutes.

The Liquor Law in Massachusetts.—A letter from Cummington, in a New York paper, says:—"In this town I am not aware that a glass of liquor is sold contrary to the letter or spirit of the law; nor have we had a single prosecution. The same may be said of many other towns; I think of most of the retired towns. In the largest towns, and those of much public resort, some liquor is sold and cases of prosecution occasionally occur. Out of Boston and vicinity, and a few villages such as Great Barrington and Pittsfield, in Berkshire county, Greenfield, in Franklin county, and a few others scattered through the State, very little is sold without detection and forfeiture. Because this works so well a strenuous effort will be made to repeal it by those whose gain will be promoted by the sale."

The Caloric Engine.—The Evening Post says: "We have contracted with Captain Ericsson to furnish us with a caloric engine as soon as it can be made, and it is already in a state of considerable forwardness. The patterns are prepared by Captain Ericsson, and the machinery is making by Messrs. Hogg & Delamater. It is to have sufficient power to drive one of Hoe's rotary presses at the rate of 10,000 impressions an hour, and four job-office presses, with a reserve force of two or three horse-power, and yet is to occupy only the space enclosed in a cast-iron box six feet square, and between five and six feet high. It is to be furnished and in operation by the middle of April."

The Astor Library.—The Trustees of the Astor Library in their Annual Report state, that the edifice in Lafayette Place has been completed during the past year, with its shelving and other appurtenances, and is a solid structure. It is deemed advisable not to put in the books until April next, so that they will not be injured by any dampness from the walls. The new building will be ready for use with the books in by the 1st of May. The amount expended on the building, besides the cost of the site, up to January 1st, 1853, was $70,000. The total expenditure to that date for books was $75,364 40. The total number of volumes now acquired is between 60,000 and 65,000. The Superintend-

ent, Dr. Joseph G. Cogswell, has gone again to Europe to make purchases, which he expects to complete by the 1st of April next. The sum which he is authorized to expend on this trip is $25,000. This will probably add 15,000 or 20,000 volumes to the works already collected; and the Library will be opened with about 80,000 volumes, carefully selected, and many of them very rare and costly; all at an outlay of $100,000. The average cost of books lately destroyed by fire in the Library of Congress exceeded $4 per volume. Those in the Astor Library are really no less valuable, but cost only $1 25 per volume on the average. Mr. Astor's will prescribes that $120,000 shall be expended at first in procuring books, and afterwards the net income of $180,000, after defraying current expenses, in continuing the collection. The residue of the $120,000 (being about $20,000) will be expended in supplying deficiencies in the various departments of science and letters. The Trustees hope to furnish an alphabetical index or catalogue of the works in the Library at its opening.

GOLD.—It appears probable that the precious metal will be found nearer home than the fields of California. Professor Hubbard has received a letter from a gentleman in Canada employed in geological surveys, making inquiries concerning the gold found on the Quechoe river, in view of the connection it may have with the gold region on the Chaudiere, the region of his exploration. He states that the Chaudiere and its tributaries bid fair to be productive in gold; that he has traced three parallel veins on that river; that it exists in the bed of the River de Loup, and that he has traced the formation into Orleans County, Vt. The streams that flow down the eastern slope of the Troy Mountains, whose waters run into the Missisquoi river, he says are "rich" in gold. He states also that a gentleman of his acquaintance has found recently, upon the bank of the Memphremagog river, near Sherbrook, a lump of gold weighing fourteen ounces, (some $250). He states further that he himself has found gold in Franconin, in the bed of the stream near the furnace.

LECTURES.—The abundance and the ability of lectures constitute a marked feature in city life this present season. We notice a few weeks since the following as delivered, several others having escaped our notice: Mr. Greeley at the Tabernacle, on Henry Clay; Rev. John Little at St. Luke's Hall, on the abuses of Fiction; Park Benjamin at the Brooklyn Institute, on Matrimony; Theodore Parker, the seventh of the People's course, at the Tabernacle, on the Progress of Mankind; Dr. Antisell, at the Stuyvesant Institute, on the Origin and Distribution of Coal; Prof. Hows, on Macbeth; Thomas D'Arcy McGee, in the Catholic course, on the Reformation; S. R. Sweetman, Esq., on the City Government; Mr. Thackeray lectured for the Society for the Relief of the Poor; Rev. H. V. Hudson lectured in Brooklyn; Prof. Silliman lectured on the Influence of Science and Art upon the Condition of Man, especially in this country, before the Mechanics' Institute; Prof. Youmans gave an experimental lecture on Chemistry, at the Tabernacle; Prof. Davis gave the first of his lectures on New Amsterdam, at the Hope Chapel; Miss Bacon's morning course of lectures on History was commenced at Stuyvesant Institute.

EUROPEAN EMIGRATION TO THE WEST.—The report of the agent of the German Society, at St. Louis, shows an increase in the arrival of German emigrants there, for the months of September, October and November, 1852, over the same months in 1851, of 6147. During the months of June, July and August, 1852, 6645 German emigrants arrived at St. Louis. The emigrants last arrived prefer the State of Iowa for a settlement, and at least one third of those arrived during the last year at St. Louis made their way to that State, which, it appears, enjoys an excellent reputation in Europe. Judging from the statistics, we should say that about one third more of the German emigrants go to the West by the way of New Orleans than by New York. During the last fall, 56,000 left the port of Bremen for the United States, the larger number of whom were destined for the Western States.

A LARGE gathering took place at Metropolitan Hall, on Monday evening, February 7th, on occasion of the Woman's Grand Temperance Demonstration. At half-past 7 o'clock, the time appointed for the commencement of the exercises, the hall was well filled—the seats on the main floor and in the gallery being generally occupied. The ladies, to the number of six, including Mrs. Amelia Bloomer, of Seneca Falls, N. Y.; Rev. Antoinette L. Brown, of Henrietta, N. Y.; Miss Susan B. Anthony, of Rochester, N. Y.; Mrs. L. N. Fowler, of this city, and two other ladies, appeared upon the stage. Messrs. S. P. Townsend, Horace Greeley, Dr. Parmly, Richard Reed, Col. E. L. Snow, L. S. Beck and others, were also seated upon the platform. When they appeared, they were greeted with much applause. Mrs. Bloomer and Miss Anthony were the only ones of the party attired in the Bloomer costume. Dr. S. P. Townsend called the meeting to order, and upon his nomination, Mrs. L. N. Fowler was called to the Chair. Upon the nomination of Dr. Parmly, Miss Mary S. Rich was chosen Secretary. Mrs. Fowler, on being chosen President of the meeting, said that she did not expect to participate in the proceedings this evening; and therefore she had prepared no speech for the occasion. She said she believed it was customary upon Presidents taking the chair to express their sense of the honor conferred upon them, and their sense of unworthiness to fulfil the station assigned to them. She would this night repeat this oft-repeated assertion, did she not consider it quite superfluous. She trusted that the friends who had here assembled this evening, whatever might be their convictions with regard to the position of woman, would yet concede to her the right to labor in the temperance cause with earnestness, and her whole soul. After prayer had been offered, Rev. Antoinette L. Brown, of Henrietta, Monroe county, Mrs. Amelia Bloomer, of Seneca Falls, was introduced to the audience, and proceeded to read an address, which occupied nearly an hour. Mrs. Bloomer was succeeded by Rev. Antoinette L. Brown and Miss S. B. Anthony, who presented eloquent and impressive exhibitions of the evils of intemperance. The meeting was one of peculiar interest.

THE report of the New York Free Academy shows that the aggregate cost of the ground, building, fixtures, books, apparatus, &c. was $90,049 71, and that the expenditure for the support of the institution for the past year has been $19,898 81. The institution now employs twenty-one instructors, and numbers 571 pupils. Its library contains 11,164 volumes, of which 8,204 are used as text-books, and books of reference. The Academy also possesses a mineralogical and geological cabinet, consisting of about 2,000 specimens, a cabinet of shells numbering about 500 specimens, valuable scientific apparatus, casts of celebrated statuary, &c.—Washington Market, it is computed, gives employment to eight thousand persons, besides an army of farmers too numerous for counting.—Thirteen hundred tickets, at a dollar each, were sold for Mr. Thackeray's lecture, upon "Charity and Humor."—About one hundred clerks are constantly employed in the New York Post Office, and for the sake of greater expedition,—to economize time and space,—labor is continued day an night. On Saturday, January 29, the United States Mail taken out by the Baltic, for Europe, contained 30,834 letters and 18,000 newspapers. The U. S. Mail Steamship Georgia, which sailed at the same time, took out the California mail, comprising 50,496 letters and 85,248 newspapers. They filled 177 bags, and weighed 12,000 pounds, or nearly five tons and a half. On Sunday, the 30th ult., there were received by the Africa, 36,400 letters, by the Hermann, 20,000, and by the Georgia, 36,000 letters, besides newspapers.—The notorious Abby Folsom has been arrested in Boston, for creating a disturbance by haranguing the crowd in State street. She refused to desist; the officers then attempted to take her off, when she sat down and refused to move. Finally a sled was sent for, into which she was hoisted, and, with two officers on board to hold her, moved off amidst the hurras, jeering, and hooting of the assembled multitude. She gave bail in $50 for examination.

SEARS C. WALKER, ESQ., the eminent astronomer and mathematician, died at the house of his brother, Judge Walker, near Cincinnati, on the 30th of January. The health of Mr. Walker had been impaired for eighteen months past, though recently he had been able to resume in a degree his labors as a computer. His great and continued mental exertions, from which the science of the country has derived so much advantage and honor, had undermined his constitution, and rendered him an easy prey to disease while yet only in middle age. For several years he has been connected with the Coast Survey of the United States, and in charge of the operations for determining distances of longitude by telegraph, and of the discussion of astronomical observations for longitude. He has contributed to the Smithsonian contributions, and to the American Nautical Almanac, an ephemeris of the newly discovered plane Neptune, which has been received with admiration by astronomers, both at home and abroad. While in connection with the National Observatory, he took a leading part in the discussions which followed the discovery of that planet, and he was thus induced to grapple early with the difficultics of the entire problem, and led to complete success. His place among our scientific men is one which must long remain vacant, won by the untiring devotions of a well-trained intellect, of higher order, to the highest pursuits of practical and theoretical astronomy.

—Mr. P. J. TENNISON, a book-keeper in a store in Cincinnati, has just received intelligence that an estate and a *title* has been bequeathed to him in Ireland, in the will of a relative, valued at £50,000. He will, when he is put in possession of his rights, be known as Lord McGilligan.

—Ole Bull's Norwegian settlement, in Pennsylvania, is going on well. Since the snow fell they have been as active as before, and they are now busily engaged in making roads, building houses, mills, and other works. Several new houses have been entirely completed already since winter set in, and the prospect now is that preparations will be made by spring for receiving a large addition to the settlement. At Cartee Camp a new school-house has been erected, and school opened in it. A steam saw mill and two water mills are already under way, and everything about the settlement indicates energy and prosperity.

—DR. AMBROSE MANAHAN, a Catholic priest of this city, in a lecture lately delivered, had the charity to speak of Charles Fourier, as "a kind-hearted man, who ought to have been a saint, and not a socialist, and undertaken a religious order instead of planning phalanxes." This is better than blind denunciation.

—Seventeen States, at least, have passed Homestead Laws. Of the Southern States, Georgia exempts forty acres, not exceeding in value $250; Florida exempts forty acres, not exceeding in value $400; Alabama forty acres, or house and lot in town, $300; Texas two hundred acres, $500; California, *the land of gold*, $500; South Carolina forty acres, $500.

—The catalogue of the Andover Theological Institute states the number of its present pupils as follows: Residents, 19; Seniors, 28; Middle Class, 35; Juniors, 27—total 109, and nearly all graduates of Colleges. Prof. Barrows is permanently connected with the department of Sacred Literature. In the three libraries of the Institution are 22,000 volumes.

—Washington Irving, while at Mount Vernon the other day, remarked that he remembered seeing General Washington in New York, when he was a child five years of age. While the General was passing through the street, accompanied by a crowd, young Irving was attended by his nurse, an honest Scotchwoman. The woman forced her way up to the General, leading her child by the hand, and approaching, addressed him: "Yer Honor, here is a bairn that is called after you." The General paused, and, placing his hand upon the boy's head, gave him his blessing. Mr. Irving states that he has a distinct recollection of the whole scene, which occurred in the year 1787.

—A Washington correspondent attributes the loss of the New York Mint Bill to a woman. It seems that Mr. Price, of New Jersey, who was in favor of the bill, was stopped in the lobby by a lady, who held him by the button until after his name had been called and the vote declared. The result was 87 to 88. The vote of Mr Price would have made a tie, and the Speaker was in favor of the bill. It is not stated whether the detention was a cunning ruse, or merely an act of thoughtlessness on the part of the lady; but the fact proves that women have some influence in the legislation of the country.

FOREIGN.

THE French news, which forms the topic of universal interest, is the Emperor's marriage to M'lle Montijo, which has taken Paris by surprise, and was unfavorably received by the Bourse. Senorita Eugenia De Teba, or, as she is more usually known, M'lle de Montijo, is the daughter of a nobleman who belonged to one of the most eminent families of the Spanish aristocracy, that of Palafox, and who distinguished himself in the civil war of 1823, under the

title of the Count de Teba. At that time he became acquainted with Miss Maria Kirkpatrick, the dashing and handsome daughter of a Scotch gentleman who held the post of Consul of the United States at Malaga. A love-affair, and a romantic marriage, was the consequence. The new-made Empress is the daughter of this Spanish grandee and Maria Kirkpatrick, who is still living, a widow, and who accompanies her daughter on her present visit to Paris, where she has appeared under the title of Countess de Teba. After the marriage, in 1823, the death of an elder brother conferred upon the Count, along with a score of other titles, that of Montijo, by which name, since her first appearance in fashionable life, the daughter has been generally distinguished. She also inherits a handsome fortune, her independent income being something like $50,000 a year. The father died some years since, leaving two daughters; the elder now wears, by marriage, the title of Duchess of Alva and Berwick, than which the Spanish nobility can boast nothing more elevated. For three or four years past, M'lle de Montijo has been wont to spend the winter in Paris, where her conduct has been much more circumspect than at Madrid. Still, she has never gained an entry into the aristocratic circles of the Faubourg St. Germain. But she was compensated for this exclusion by the cordiality with which she was received at the Elysee, and by the profound impression she made upon its master. From the first she inspired Louis Napoleon with an ardent passion, which justified her resolution to become his wife, and share the glories that destiny had in reserve for him. In accordance with this determination, she steadily rejected other proposals without regard to their magnificence.

The Pope is resolved to visit France and perform the consecration required of him by the Emperor. This firm resolution has thrown the Sacred College into the greatest consternation, and a congregation of Cardinals has been held to consider the matter, in which Cardinal Antonelli announced to his eminent brethren that he had opposed the Pope's determination to the utmost, but that he saw very well that it would be in vain, and that his Holiness would write to the Emperor, *di proprio pugno*, expressing his willingness to undertake the journey, in spite of the opposition of the whole Sacred College. It is urged by their eminences that a Pope having crowned the first sovereign of the Napoleonic dynasty, the whole race is sufficiently consecrated, without a Pope having to anoint each succeeding Emperor; and that were such a precedent to be established, no Catholic Potentate in Europe would be satisfied without obtaining, in his own person, the crowning work of the head of the Church. The fact is, that the Sacred College is thoroughly Austrian, following the example of Cardinal Antonelli, while the Pope is French in his tendencies, and obstinate when his mind is once made up. Add to this, that the French have the nine points of the law on their side, by having Rome in their possession, and it becomes more than probable that, despite of Austrian and Russian influence, and the struggles of the Cardinals, Pio Nono will repair to Paris, and pour the sacred oil on the head of Napoleon III.

A general subject of conversation at Rome is the recent conversion to the Catholic faith of Dr. Ives, the Anglican Bishop of Carolina, in the United States. Dr. Ives, when at Rome, had put himself in relation with Monsignor Gill, the Catholic Bishop of Virginia, United States, and addressed himself to Monsignor Talbot, the private cameriere of the Pope, in order to make his solemn abjuration, and publicly profess Catholicism. This ceremony took place on the 26th December, the Pope, in person, administering the sacrament to the convert. Dr. Ives, in abandoning the Episcopal Church of the United States, has to give up a very advantageous position. His wife at first warmly opposed his intention, but it is said that she now begins to defend him against the attacks of some Protestant ministers who accompanied the Bishop to Rome.

It Spreads.—Lord Palmerston concluded a late electioneering harangue in a manner quite unexpected. After thanking the people for their votes and support, he sat down, but immediately rose again, and spoke as follows:—"In America it is maintained that the ladies should have the right to vote. Our own progress has not reached that high point. Nevertheless, as I have returned thanks to those who are entitled to vote, I may, perhaps, be permitted to thak those who *influence those who do vote*—(laughter)—and tender my thanks to the ladies of Tiverton for those kind offices which I am persuaded they have afforded me with their relations and friends." This is, perhaps, not the kind of recognition which the Woman's Rights Convention would prefer from a cabinet minister; still, it shows that the ideas promulgated by the Convention have made a certain impression upon the world. The ladies have had, at least, a hearing.

The following is a list of the salaries and retiring pensions of the English cabinet ministers:—First Lord of the Treasury, Foreign Secretary, Home Secretary, Colonial Secretary, and Chancellor of the Exchequer, salary, £5,000 each, pension, £2,000 each; First Lord of the Admiralty, salary, £4,500, pension, £2,000; President of the Board of Control, salary, £2,000, pension, £2,000; Irish Secretary, salary, £5,000, pension, £1,400; Secretary of War, salary, £2,580, pension, £1.400; Joint Secretary of the Treasury, salary, £2,000, pension, £1,200; First Secretary of the Admiralty, salary, (not known,) pension, £1,200; Vice-President of the Board of Trade, salary, £2,000, pension, £1,200.

"The Franciscan Monks," writes Grace Greenwood from Rome, "are the ugliest, coarsest, most miserably animal-looking set of men I have ever encountered, in or out of the church. I declare to you, that in all that long procession, I saw not one whose countenance revealed that he had one high thought in his brain, one pure aspiration or gentle human affection in his heart."

Miscellany.

American Character. By an Englishman.—Mr. Casey, in his work, "Two Years on the Farm of Uncle Sam," just published in London, gives the following analysis of American character:

"Vieing with the Parisian in dress—the English in energy—cautious as a Dutchman—impulsive as an Irishman—patriotic as Tell—brave as Wallace and cool as Wellington—and royal as Alexander—there he goes—the American citizen! In answering your questions, or speaking commonly, his style is that of the ancient Spartan; but put him on a stump, with an audience of whigs, democrats, or barnburners, and he becomes a compound of Tom Cribb and Demosthenes—a fountain of eloquence, passion, sentiment, sarcasm, logic, and drollery, altogether different from any thing known or imagined in the Old World states. Say any thing (as public men) united with conventional phraseology, he swings his rhetorical mace with a vigorous arm, pushing the antagonistic principle or person into a most villanous compound. See him at dinner—he dispatches his meat with a speed which leads you to suppose him a ruminating animal; yet enjoying his cigar for an hour afterwards, with the gusto and *sang froid* of a Spaniard.

"Walking right on, as if it were life against time, with the glass at fever heat, yet taking it cool in the most serious and pressing manner—a compound of the Red Man, Brummel and Franklin, statesman and laborer—on he goes, divided and subdivided in politics and religion—professionally opposed with a keenness of competition in vain looked for even in England. Yet let but the national rights or liberty be threatened, and that vast nation stands, a pyramid of resolve, united as one man, with heart, head, hand, and purse, burning with a Roman's zeal to defend inviolate the cause of the commonwealth.

"To him who has lived among the Americans and looked largely at the theory and practice of their government and its executive, there remains no possible doubt that the greatest amount of personal security and freedom has been produced from the least amount of cost of any nation in the world. Culling its principles and wisdom from the history of all empire, it stands the nearest of all earthly systems to perfection; because it is built on and embodies those principles which God hath proclaimed in his attributes.

"I noticed that the American sets less value on life than Europeans; that is, he does not think the loss of life the greatest loss—the ultimatum. When a man dies you see none of that sentiment, (Use the best term I can think of,) which surrounds such an event in other countries. The American is silent in manner—embarrassingly so at first, extremely accurate in his observation of human nature, and any man that cannot bear to be scrutinized had better not come here. The American judges much by the eye, and has a most enviable power of estimation. Your temperament, speech, looks, and acts are all taken in by him; and if you can get a tablet of his judgment, you will find a remarkable daguerreotype of your exact worth written thereon. They are all phrenologists and physiognomists, not merely as philosophers, but as practical appliers of those inductive sciences; and beneath a show of positive laziness or languor there is an amount of energy and action, mental and physical, perfectly surprising. They are not averse to the higher branches of science or literature; but they bend all to utility, and are, as a nation, the best arithmeticians in the world; and this science alone gives a terse matter-of-fact to their mental working: in fact, when a man wants to reflect on a proposition, he says, 'Wait till I figure up.'"

[That our people are capable of forming a remarkably correct estimate of the real worth of a stranger is evidently true. They have *studied* the subject, and are therefore "posted up."]

To Housewives.—["Washing day" has been a terror to husbands and dogs from time immemorial; and if the following be true, who shall compute the happiness, or the absence of Monday *unhappiness*, in reserve for the said bipeds and quadrupeds of the masculine gender? But who shall estimate the amount of relief that woman shall experience in the future exemptions from sore temptations and sore knuckles, which were contemporaries of "washing day?" The following is easy of trial, and worthy of practice if true]:—

"Washing made Easy.—A laundress of eminence, of the city of New York, has given notice through a newspaper of that city, that for one dollar sent to her free of postage, she will send back printed directions for washing clothes without machines, washboards, or pounding barrels, by which method a great amount of labor will be saved and much time economized, and the washer will be enabled to do the washing of a large family before breakfast, and the house may be 'set in order' or 'put to rights,' before the time for morning calls from your acquaintances. By this method there will be no rubbing off the skin of hands—no loss of finger rings, nor tearing buttons from the clothes, all of which will pass the watery ordeal safer than the witches of past age did, uninjured, preserved, and much whiter than they would be in the old methods, and the fabric, however fine, come out unharmed. The expense is small.

"A gentleman of this city has discovered the secret of this mode of washing—but whether direct from the New York professor, or by 'any indirection,' or by the stirring up of his own chemical knowledge, or otherwise, we know not—and shows how he has practically applied his discovery by communicating to us the following

"Directions.—Take one quart of soap and put therein two table spoonfuls of spirits of turpentine; incorporate the same fully by stirring well together; put the clothes into a tub; then take one half of the soap, put it into the tub, and put into the same boiling hot water; let them soak therein for thirty minutes. Then take them and put them into a boiler; add thereto the other half of the soap, and boil them thirty minutes; then wring out and rinse them well. Hang out and dry.

"This process requires no scrubbing or pounding, and the clothes are left whiter, and with less wear and tear to them or to the hands."—*Boston paper.*

Phrenology in Bangor, Maine.—The *Daily Courier*, of recent date, contained the following testimonials:

"For a few weeks past a number of members of the Mechanic Association, with their wives and children, to the number of about forty, have been in a class, under the instruction of Mr. Charles Drew, for the purpose of acquiring a knowledge of the principles of Phrenology.

After the course had closed, at a special meeting of the class, Rufus Prince was called to the Chair, and Dr. L. W. Fletcher was chosen Secretary. The following resolutions were unanimously passed:

"*Whereas*, for the past few weeks having been under the instruction of Mr. Charles Drew, for the purpose of acquiring a knowledge of the principles of Phrenology: Therefore,

"*Resolved*, That in the course of lessons just closed, Mr. Drew has demonstrated clearly that Phrenology, as a system of mental philosophy, is true, being founded on facts and the immutable laws of nature; that its practical importance makes it worthy of careful study, since it gives a correct index to character, talent, and ability—making it of indispensable utility in the right training, mental and

moral education of children, and self-culture of every individual.

"*Resolved*, That the thanks of the class be tendered to Mr. Drew for the zealous, efficient, and gentlemanly manner in which he has sustained the office of teacher; and we cordially recommend him to all who may feel interested in, and desire to obtain a thorough knowledge of this science.

"*Resolved*, That a copy of these resolutions be presented to Mr. Drew, and also published in the Bangor *Daily Courier*. RUFUS PRINCE, *Chairman*.
L. W. FLETCHER, *Sec.*"

SINGULARITIES OF OUR LANGUAGE.—Foreigners, on becoming partially acquainted with the English language, justly complain that it lacks uniformity—that there is no reliable philosophy on which they can depend for the correctness of an expression. Our own children, too, when a mode of expression comes up with which they are not familiar, find the same difficulty. We become familiar with contradictory modes of expression, and do not notice them as do children and foreigners. When we *sand* the floor we cast sand *upon* it, but when we *dust* the furniture we remove dust *from* it. When we *paint* the house we lay something *on*, but when we *skin* the ox we take something *off*. We *dress* a child by *overlaying* it, and *scale* a shad by *removing* that by which it is overlaid. If it be proper to say, "skin the ox," why is it not proper to speak of *wooling* the sheep instead of *shearing* it? What would we think of a farmer who should talk of *corning* or *grassing* his fields, or *appling* his orchard; or of his wife who should speak of *feathering* her geese, or *blacking* her knives, or *dirting* the clothes? But we do that which is equally ridiculous, when we speak of dusting the furniture, skinning the ox, and scaling the fish, although custom has sanctioned those modes of expression, and Noah Webster recorded them in his dictionary.

HEREDITARY POWER AND LONGEVITY.—In the month of February, a Mr. N., of Vermont, called at our office for an examination. We were forcibly struck with the compactness and excellent balance of his body, and our first remark to him was, "You are from a family particularly distinguished for their excellent health, long life, and for the number of their offspring." At the close of the examination he made the following statement, relative to his family, which our reporter took down in phonography, word for word as he uttered it:

"I am one of the seventh generation of a New England family, celebrated for longevity and number of their offspring. My grandfather, on my father's side, died at the age of 76; my grandmother, same side, died at 84. My grandfather, on my mother's side, died at 72 or 73, and my grandmother lived till 94. I am the tenth son and thirteenth child; mother still living, at the age of 80, smart and intelligent, with a brother and two sisters her seniors. I have ten aunts now living, whose united ages are 730 years, and the youngest is 67. My uncles have all lived to be upwards of 60 years of age. My oldest brother is a grandfather. My father was accidentally killed at the age of 67."

To Correspondents.

QUESTION.—How is it that many persons, in whom otherwise the cuticular indices of temperament are not decidedly vital, have a heavy red beard? Is it that, in passing puberty, the organization undergoes some change favorable to the ascendency of the vital temperament? Let the Phrenological Journal say. L. B. S.

ANSWER.—The appearance of the skin is not the only index of the temperament. A person may have a large chest arising from large vital organs, and have that temperament in strong predominance, even with dark hair and beard inherited from one parent, while their leading vital elements come from the other. Let it be remembered, that temperament is indicated full as much by form and texture, as by color of hair, eyes, and skin.

S. A. F.—The temporary loss of memory, in the case of the lady you mention, was probably caused by a congestion of the brain, and the severe pain in the head favors this conclusion. We do not regard it as a paralytic attack.

General Notices.

PROFESSOR GILLETT (?)—We have before us a hand-bill which reads as follows: "Prof. Gillett, of New York, Agent for Fowlers & Wells, &c., will commence a course of lectures on Phrenology, Physiology, &c., Dec. 7th, at Concert Hall, Seneca Falls, N. Y.," &c.

From the face of this hand-bill it would appear that this Prof. Gillett, as he calls himself, is lecturing on our account, and that as a lecturer he is sent out by us, and is doing business under our special patronage. We wish to inform the public that this is not the case. We have no acquaintance with him, are not aware that we ever saw him, and although he "hails" from New York, we know not that he ever resided here. A year or two ago, a man of this name paraded on his hand-bill that he was agent for the "American Phrenological Society." We would inform the public, that the "American Phrenological Society" never authorized him to act in this capacity, nor was any man named Gillett ever a member of that society. We once wrote him that he was doing injustice to the society and the public, by advertising himself agent for it, and he replied in effect, that he claimed the agency for the society to give himself credit and influence among the people, and promised to refrain from it in future.

We are in receipt of letters and personal declarations from different parts of the country, giving unfavorable reports of this person. We have before us a copy of the *Livingston Union*, of Nov. 10, 1852, with an advertisement in which he claims to be agent for Fowlers and Wells, and proposing to give a course of lectures, &c. A person has sent us the paper and drawn a line around the notice, and written under it—"Gillett will be tarred and feathered this evening if he does not leave town."

Our opinion is, that men of correct character would not, at this day, be thus treated and talked about. There are many in the lecturing field whom we know to be men of good character, and for many years we have travelled over the same ground, and never heard a word to their disadvantage; and whenever unfavorable reports come every month from all quarters, relative to particular individuals, we think there must be "something wrong."

We are quite willing to aid, in all proper ways, every worthy man in the field; but we are quite unwilling to be responsible for the acts of unworthy characters, or to permit them, unrebuked, to claim to be our agents, and to be subjected to the disgrace of their acts, as we are doubtless considered to be, when repeatedly informed of their shortcomings, and questioned as to whether they really are lecturing on our account. We wish it distinctly understood, that *we employ no agents to lecture on our account*. No one acts in that capacity for us, except those immediately connected with our New York and Boston establishments. "In respect to agencies," we may say that we have probably one thousand agents, who are authorized to receive subscriptions for our Journals, and have certificates from us to that effect, which all persons subscribing to strangers would do well to see before they pay their money. This is the extent of our agency system.

We cannot afford to suffer for the sins and misdemeanors of wicked, selfish men, who take up Phrenology and claim to belong to our ship, and to sail under our colors; nor is it fair that the science should be made to suffer from their misconduct, especially when the public erroneously suppose they act for us and under our sanction.

PHRENOLOGY IN CANADA.—The very acceptable communications from our excellent friend and correspondent, W. M. WILSON, now lecturing in Toronto, have excited much interest. Those friendly to the cause, who have made the acquaintance of Mr. Wilson, speak very highly of him; nor have we heard of but one single fault-finder, and he a singularly "Odd Fellow" to be connected with the press. Were he in the States, he would be laughed at; but the good-natured Canadians probably look upon him as the ox upon the fly. This objector volunteers some advice both to Mr. Wilson and ourselves. We take it, "but consider where it came from," as did the man who got kicked by a "John Donkey," and of course would not return the compliment.

Hoping the friends of Phrenology every where will guard sacredly the principles of the science, as well as its advocates and apostles, we close the present notice by quoting a part of a private letter just received from a responsible citizen of Canada:—

GENTLEMEN:—In your last Phrenological Journal we saw a very interesting and well-written article, from the pen of W. M. Wilson, on "Phrenology in Canada."

The article has been well received, (so far as I am able to learn,) by the readers of your Journal, with one exception, and that is D. J. Hughes, Esq., editor of the *Odd Fellow*, at London. He is known here by the appellation of lawyer, but would be called in the States no more than a pettifogger.

He is not a general reader of either of your Journals, and it was by mere accident that he happened to see the article above referred to. The only feature of the article that seems to disturb him, is where it speaks of the Canadas turning over their allegiance to the great Anglo-American Empire, and on the strength of which he has written an abusive article against Mr. Wilson.

It is quite useless for me to attempt to delineate the character of this would-be famed individual. You will easily discover his leaning propensities by once reading his talented effusion.

As respects Mr. Wilson, I am personally acquainted with him. I became acquainted with him when he was lecturing and giving charts in London. He was considered by all believers of the science to be as competent a phrenologist as ever visited London, excepting only yourselves.

Phrenology is at present progressing slowly here. There is much need of a lecturer. We have not been favored with one since Mr. Wilson left. I think he would be well received and liberally supported. I remain yours respectfully, J. A.

THE PHRENOLOGICAL BUST.—After obtaining a familiar acquaintance with the general principles of the science, which every person may do by reading, the BUST will become indispensable to the student. It gives the exact location and extent of each organ, and is to Phrenology what the map is to geography. Each organ is neatly labelled with the name it bears. The bust is varnished, and thus easily kept clean, and is decidedly ornamental. It may be sent to any part of the world, by express or as freight—not by mail. Price, including box for packing, $1 25. Address FOWLERS AND WELLS, 131 Nassau street, New York.

PUBLIC DOCUMENTS.—Hon. THOMAS J. RUSK, United States Senator from Texas, will please accept our thanks for valuable public documents.

Book Notices.

SPEECHES ON THE LEGISLATIVE INDEPENDENCE OF IRELAND, with Introductory Notes. By THOMAS FRANCIS MEAGHER. New York: J. S. REDFIELD.

POOR Ireland sits shivering over her extinguished altar-fires! Harp and voice are silent! She mourns her noblest sons in exile and in bondage! One of these, Thomas Francis Meagher, landed upon our shores a few months ago a penniless stranger and fugitive. He found a home and friends, and has won not only the applause and admiration of our people, but their esteem and love. He is an eloquent, earnest, true-hearted man, and deserves all the success which he has obtained. His numerous friends and admirers will gladly hail the appearance of this volume of his speeches. To his countrymen in America will it be particularly dear, as a memento of proud days, and of a noble but bootless struggle. The matter and style of these speeches need not our commendation. The work is handsomely got up, and is embellished with a portrait of the author.

TRANSACTIONS OF THE NORTH-WESTERN FRUIT GROWERS' ASSOCIATION, at their Second Annual Meeting, held at Dixon, Illinois, Sept., 1852. With an Appendix, containing the Proceedings of the Association in 1851. "Democratic Press" print, Chicago, Illinois. JOHN A. KENNICOTT, President. SAMUEL EDWARDS, Secretary.

A VERY creditable report, giving the best assurance of rapid growth and future success of the Association. This fruit interest is yet in its infancy in the great West, but we clearly foresee its future magnitude. Millions of fruit trees should at once be planted in Illinois. She may yet become as distinguished for the growing of fruit as for grain, wool, or pork. Lovers of good fruit throughout the State should co operate with the Association. We shall look with interest for the succeeding reports.

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